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Coal Burning Locomotive.

Our wood burning locomotives must soon give place to those for burning coal, especially on the New York and New England railroads. In Pennsylvania those for burning coal have already attained a profitable and permanent footing, especially on the Reading Railroad, but in New York, so far as we can learn, there is but a single coal burner in use, and that one a clumsy and uncouth monster, employed for drawing freight on the New York and New Haven Railroad. We perceive by the New Bedford *Mercury*, that an anthracite coal-burning engine which ran with great regularity for two months on the Taunton and New Bedford Railroad, has been transferred to the Western Railroad, Massachusetts, and has done well. This locomotive was built at Taunton, Mass., and is thus described by the paper referred to:—

"The peculiarity of this locomotive consists in the construction of the boiler. To state this plainly we may say that the water comes to the fire, instead of the fire going to the water. This passes through the tubes, instead of the fire, as in locomotives of the old construction, and is continually circulating round the fire box. In this way, a moderate combustion generates the necessary amount of steam, and the fire box not being subject to the violent heat, which has been the real difficulty with other engines for burning anthracite, is preserved, while it has been burned out in all other engines in a few weeks."

From this description we understand that this is one of Dimpfel'slocomotives which was illustrated on page 248, Vol. 7, SCIENTIFIC AMERICAN.

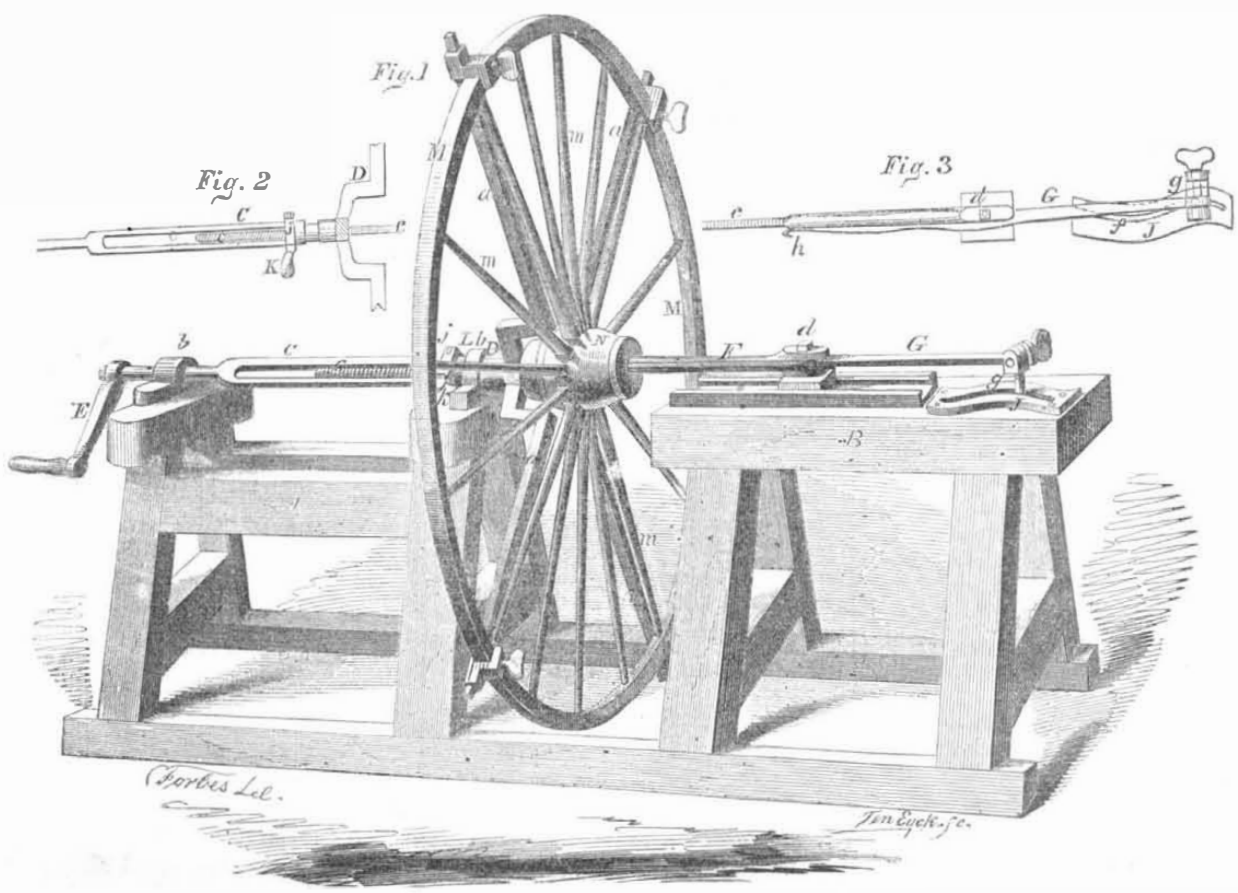
The Crown of England.

The following is estimated as the value of the jewels in this magnificent diadem: Twenty diamonds round the circle, £1,500 each, £30,000; two large center diamonds, £2,000 each, £4,000; fifty-four smaller diamonds, placed at the angle of the former, £1,000;—four crosses, each composed of twenty-five diamonds, £12,000; four large diamonds on the top of the crosses, £4,000; twelve diamonds contained in fleur-de-lis, £10,000;—eighteen smaller diamonds contained in the same, £2,000; pearls, diamonds, &c., upon the arches and crosses, £10,000; also one hundred and forty-one small diamonds, £5,000; twenty-six diamonds in the upper cross £3000; two circles of pearls about the rim, £3,000. Cost of the stones in the crown, exclusive of the metal, is about £111,900.

Cause and Effect.

It is singular how one thing is dependent on another in this country. Speculators in New York put up the price of griddle cakes, and the failure of one extravagant man makes "hard times" for a hundred others.—A rise of $10 per tun on logwood puts port wine out of the reach of the community—two cents advance on cotton makes shirt flaps the same number of inches shorter, while a fall in cotton increases the size of busts and bustles. "Sich is life."—[Ex.

CASSELMAN'S HUB BORING MACHINE.



The accompanying engravings are views of an improved machine for boring taper holes in hubs of wheels, for the purpose of receiving their journal boxes, for which a patent was granted to W. J. Casselman, on the 9th of last May.

The nature of the improvement consists in having a cutter attached to one end of a lever, and a pin on the opposite end working in an oblique slot in a meal plate secured to a suitable bed. The fulcrum or pivot on which the lever works passes through a rod which has a screw cut upon a portion of it, and a nut working thereon. The rod and lever are moved by turning the nut mentioned, and the cutter on one end of the lever is made to pass through the hub in an oblique direction, cutting a taper hole, owing to the direction given the cutter by the pin on the opposite end of the lever working in the oblique slot in the metal plate, J. The hub rotates with the nut.

Figure 1 is a perspective view of the machine with a wheel in it in the act of having its hub bored, and figures 2 and 3 are sections of the clamping, cutting, and guiding devices and combinations. The same letters refer to like parts on all the figures.

A B are two frames for supporting the parts, and the hub to be bored; C is a shaft in the form of a link, and having a collar or socket, D, at one end, with radial arms, *a a*. The shaft, C, works in suitable bearings, *b b*; E is its crank handle. F is a rod which passes through the center of the collar, D, and through the center of the inner journal of shaft, C, it has a screw thread, *c*, cut upon its inner end. The outer end of this rod has a slot cut in it, in which a portion of a lever, G, fits a pivot, *d*, on which this lever turns, passing through the end of the rod; J is the plate with the irregular or oblique slot, *f*, cut in it. On the outer side of lever G, there is a pin, *g*, projecting downward from it, and fitting on the slot, *f*. On the inner end of lever G is a cutter, *h*. The outer end of rod F rests upon a slide which works between guides at the edges of the bed plate. The pin, *d*, of lever G passes into this slide and secures the rod, F, to it; L is a nut attached to shaft C; it is formed of two sections, or halves, *j j*, one of which has a screw thread cut in it, and fits on the screw, *c*, on the rod, F. A spring catch, *k*, secures the two halves of this nut together.

M is a wheel placed in the machine against the collar, D, and its spokes are secured to graduated arms, *a a*, by clamps. The inner end of the hub, N, of the wheel fits in the collar and is thus placed in the machine. The rod, F, is then passed through the mandrel hole in the hub, and the two halves of the nut, L, are brought together and secured by the spring catch, *k*. Motion is then given to the handle, E, when the shaft C, nut L, collar, D, and wheel, M, rotate the nut, L, drawing the rod, F, and lever, G, through the mandrel hole in the hub, and the cutter, *h*, at the inner end of the lever, G, cutting the taper hole in the hub owing to the direction given it by the pin, *d*, working in the slot, *f*, in the plate, J. The taper hole may be cut larger or smaller by varying the position of the cutter; for example, when the plate, J, is in line with the center of the hub, N, the diameter of the taper hole will be of a size corresponding to the obliquity of the slot, *f*, when the end of lever, G, is adjusted so as to be out of line with the center of the hub, the diameter of the taper hole will be proportionably increased. When the taper hole is bored, the nut, L, is opened, and the rod, F, is forced backward by hand, and the wheel is then detached from the collar, and another one put in its place, and operated upon in a similar manner. It will be observed that the pin of G is guided in the oblique groove, therefore when the pin is moved considerably to the one side, the cutter, *h*, is thrust out more to the one side, and as the wheel rotates, the cutter must bore a hole of a larger diameter than when it is less thrust out of a central line. This principle of boring taper holes is very simple and correct. Wheels can be *trued* either from their circumference or the center of the hub. The time required to place the wheel true on its position, and replace the screw rod, cutter, &c, does not exceed one minute. The outer end of the cutter lever, G, is set in any position by a setting screw above pin, *g*, to make the cutter, *h*, bore a hole of any size desired in the hub.

More information respecting this machine may be obtained of Thomas George Walker, No. 70½ Pine street, New York.

Fish Cast Up from the Sea.

A curious phenomenon has lately been witnessed in the port of Vera Cruz. For several days in the beginning of last month, the shores of the harbor and neighborhood were strewn with dead fish, cast up from the sea. So great was the quantity, that serious fears were entertained lest disease should follow from such a mass of putrefaction. Bodies of troops were turned out each day, who gathered the fish and bury them on the spot. A general order was issued commanding all those residing in the vicinity to take the same steps for the prevention of disease. An order was also issued prohibiting the sale of fish. This phenomenon continued for several days, and at last gradually disappeared. In the appearance of all the fish the first thing that struck the attention was the inflamed and protruded state of the eyes, such as ordinarily takes place in strangulation.—On opening the fish, the intestines were observed to be much distended with a gas which, on testing, proved to be carbonic acid gas. It was concluded by a doctor in one of the hospitals, that this gas had been evolved during a submarine volcanic eruption.

Shade Trees on Railroads.

MESSRS. EDITORS—It has often occurred to me that railroad companies would gain much by planting the waste land on each side of the track with trees. The locust, for instance, which will grow in any soil, requires no attention, and is of rapid growth. The advantages would be, first, a refreshing shade. Second, a protection from the dust by retaining the moisture. Third, strength to embankments, and fourth, sufficient timber, and superior to any other, for all the ties on the road; a tree will grow sufficiently large in ten or fifteen years. N. JONES.

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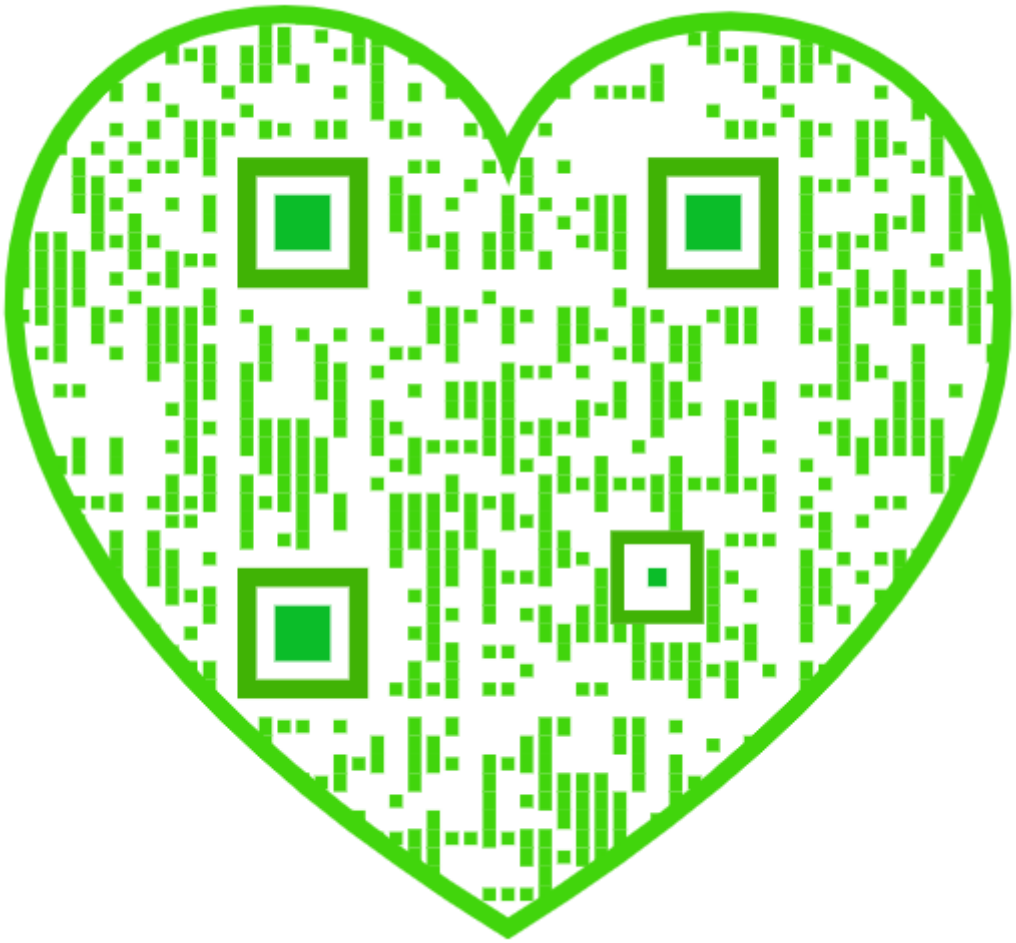

Alloys of Copper and Zinc.

The nature of metallic alloys is yet so imperfectly understood that every attempt to extend our knowledge in this department of chemistry, is full of interest. Every new alloy discovered should also receive the protection of the patent law, when application is made for a patent.

A paper was read on this subject by D. Forbes, C. E., before the British Scientific Association, affords some curious and peculiar information. It seems that his attention was directed to the subject by some brass castings which were made by his workmen, who in making the brass were not very precise respecting the proportions of copper and zinc which they employed. It was found that on cooling, one of the castings had split into several pieces, presenting in many parts a very striking appearance, totally different from the brass which composed the other castings, and yet all of them had been poured into their molds out of one crucible of melted metal; the other castings had the appearance of ordinary brass, but this casting showed a brilliant silvery white fracture, and was so brittle that it shivered to fragments when gently struck with a hammer, and could easily be reduced to the finest powder in a mortar. It was analyzed and found to consist of zinc 50·64, copper 49·46. Some chemical force had come into play in the crucible in which it was produced, or else it could not have been so different from the other castings. It is rather singular that an alloy containing so much copper should be so white.

On Compound Interest.

[Continued from page 82.]

$p=m\div rt$.—What is the present value of $1000, payable after 12 years, at 7 per cent. compound interest?

$m=1000$ log. $m(1000)$ 3,0000000
$t=12$ log. $r=0·0293839$
$r=1·07$ $t\times$ 12
$0·3526068=r_t$

$m\div rt=2·6473932=444·01$ the present value.

III.—Annuities. 1. The annuity (a), rate of interest (r), and time (t) being given to find the amount (z).

1. $$z=\frac{ar^t-a}{r-1}$$

An annuity of $100 is forborn 20 years at 6 per cent. per annum compound interest; what is the amount?

$a=100$ $r-1=0·05$ $z=?$ $t=20$
Log. $a=2$-0000000 Log. $r=0·0211893$
" $r-1=8$ 6989700 subt. $t=$ 20

" $\frac{a}{r-1}=3$ 3010300 Log. $r^t=0·4237860$
" $r^t=0·4237860$ add

Log. $\frac{ar^t}{r-1}=3·7248160$, whose No. is 5306·6
the number of log. $\frac{a}{r-1}=2000$ subt.
the amount (z) is $3306·60

2. $$z+\frac{a}{r-1}=\frac{a}{r-1}\times r^t$$

From the log. of a subtract the log. of (r—1.) To the number answering to the remainder add the given amount, and from the log. of this sum subtract the afore found remainder; this second remainder, divided by log. of r, will give the required time.

A Life Insurance Company charges at a certain age of a man 3 per cent. of the insured sum, yearly premium. If you allow 5 per cent interest, say in what time he will have paid just as much as the insured sum.

$a=3$ $z=100$ $r=1·05$ $t=?$
Log. $a=$ 0·4771213
" $r-1=8·6989700$

Log. $\frac{a}{r-1}=1·7781513$, whose number is 60·00
add z 100

Log. 160 $=2·2041200$ $z+\frac{a}{r-1}=$ 160

Log. $r^t=0·4259687$, which divided by Log. of $r=0·0211893$, gives 20·1003 plus years for t.

3. $$a=\frac{z\times r-1}{r^t-1}$$

To the log of z add the log. of (r—1), and from the sum subtract the log. of (r^t—1); the remainder is the log. of a.

An annuity forborn 20 years amounts to $1000 at 6 per cent. per annum; how much is the annuity?

$z=1000$ $t=20$ $r=1·06$
Log. $z=3·0000000$ Log. $r=0·0253059$
" $r-1=8·7781513$ $\times t$ 20

Log. $z\times r-1=1·7781513$ Log. $r^t=0·5061180$
" $r^t-1=0·3438299$, whose number is

Log. $a=1·4343214$ $r^t=3·20714$
whose number is $27·1845 $r^t-1=2·20714$

4. $$\frac{z}{a}-1=\frac{z}{a}r-rt$$

This equation cannot be resolved by the general method. In the present case it would be $35·7856=36·7856\ r-r$.

Take the following rule:

Let $\frac{z}{at}\Big|^{\frac{t-1}{2}}=1+y$; and let $\frac{6}{t+1}=b$. Then $(\sqrt{bb+2by})-b$ is exceedingly near the increase of the rate, or $r-1$.

Wherefore take the log. of the amount and the complements of the log. of the time and the annuity, the sum (abating 2 in the ten's place of the index:) divide by $\frac{1}{2}\times t-1$; the quotient will be the log of $1+y$. Then divide 6 by $t+1$, and to b, the quotient, add twice y; to the log. of b add the log. of ($b+2y$) half the sum will be the log. of ($\sqrt{bb+2by}$) from which square root subtract b, the remainder will be very near the increase, or $r-1$, and adding 1, r is found.

An annuity of $27·1845 forborn 20 years amounts to $1000: what is the rate of interest? $z=1000$ $a=27·1845$ $t=20$

Log. $z=3·0000000$
Comp. log. $t=8·6989700$
" " $a=8·5656786$

divided by $\frac{1}{2}t-1=9·5)0·2646486($

Log. $(1+y)=0·0278577=$ 1·066247
$2y=0·132494$

$b=\frac{6}{t-1}=\frac{6}{21}=0·2857142$ Log. $b=9·4559318$
$2y=0·132494$ L. $b+2y$ 9·6213925

$b+2y=0·4182082$ div. by 2) 19·0773243(

$\sqrt{b^2+2by}=0·34567$ L. $\sqrt{b^2+2by}=9·5386621$
$b=0·2857142$

$r-1=0·0599558$, and therefore the rate is 6 per cent. per annum.

[Concluded next week.]

Caution to Inventors.

The inventor who makes application for a patent should be very careful when executing his papers not to sign powers of attorney, which authorize his agents to withdraw the twenty dollars which is refunded upon rejected cases. He can authorise his agents to withdraw the papers from the Patent Office, and make all needful alterations, but he should be very cautious not to sign away his right to receive back the amount to be refunded in case of rejection, unless there is an especial agreement allowing the agent to do it. Many instances have come under our notice, and we have now before us complaints against agents who have withdrawn the twenty dollars without ever informing the applicant of the fact, and he is very much disappointed to be told by the Commissioner that he had previously signed away his right—in this respect—to his agent.

There are a few dishonest men engaged in the patent agency business, who will take all the advantage they can of such clients as are unlucky enough to fall into their hands, and if inventors will very generally heed our advice, they will no doubt save themselves from loss in this respect. Whenever the power of attorney embraces a clause authorising the agent to withdraw anything but the papers, just take a pen and strike it out. The agent can take a power to withdraw the money as well after as before the case is rejected.

On Painting Houses.

In No. 4, Vol. 10, Scientific American, you copy from the London *Builder*, "woodwork painted in October looks better at the end of four years, than if painted in June it would at the end of two," which is true provided the same preparation of paint is used. In cold weather the oil is thicker and there is more oil in proportion to the quantity of dry paint put on, at a coat. But if the same quantity of oil in proportion to the dry paint is put on in June as in October, the painting will be as durable. This can be done by making the paint very thin and putting on more coats, or what is better, boil the oil with one pound of litharge to four gallons of oil, until the latter loses its yellow oily appearance, this will thicken the oil sufficiently and make the paint dry well. In every instance paint enough should be put on to have a good gloss, if intended to stand the weather. No turpentine should be used in outside house painting. A. W. H.

Platte City, Mo., Nov. 1854.

Hat Body Drying Machine.

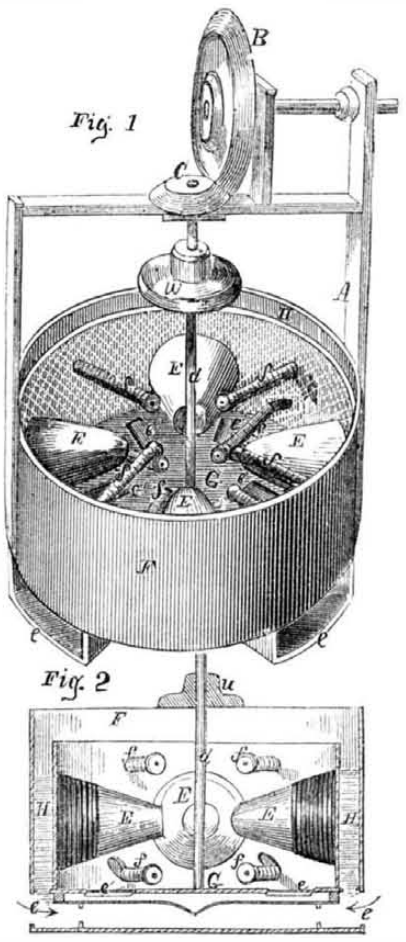

Figure 1 is a perspective view, and figure 2 a vertical section of a centrifugal machine for drying hat bodies and yarn in hanks, invented by L. W. Boynton, of this city, who has taken measures to secure the same by patent.

F is an outside metal cylindrical case secured firmly to the frame, A. Inside of this is a rotating wire gauze cylinder, with a space, H, between the two. This wire gauze cylinder is suspended on a shaft, d, which is properly secured in a suspension bearing on the cross bar of the frame; B is a smaller friction bevel wheel, on the spindle, d. By turning the shaft of B, the spindle, d, is revolved and the inside cylinder receives a rotary motion. On the sides of the inside cylinder are four hollow cones, E E E E, (any number according to the size of the machine may be used.) Upon these, wet hat bodies are placed—about twelve hat bodies upon each—and a rapid motion (of from five to eight hundred revolutions per minute) is given to the spindle, d, when the moisture is thrown off the hat bodies against the wire gauze, and passes through it into the space, H, striking against the inside of case F, then falling down and passing out through vertical openings at the bottom, close to the outside case. The bottom of the rotating wire gauze cylinder is made of metal, and has rectangular slits cut in around the center of the spindle at G. These slits or openings have oblique projecting flanges, e' e', on them, answering the purpose of fans, which as the machine rotates, draws in air through the channels. e e, and sends it upward through the interior of the rotating cylinder. It will dry about 100 bodies in from three to five minutes time, according to the velocity given to it, and it possesses the quality of removing the loose coloring matter from the hat bodies, if they have not been well washed; that is, they are not so liable to crock off as those dried in the common manner.

This machine is also represented as being adapted for drying yarn with great rapidity; f f are fixed pins set in the side of the rotating cylinder, in a row near its top, and f f are a lower set of pins which are set in slots around the cylinder. The yarn in hanks is placed on these pins, and the lower ones in the slots adjust themselves to its length (the yarns,) so as to let it hang and be finely stretched; u is a weight which, when the yarn is adjusted on these pins, is slid down on the spindle, d, and rests on the inner ends of the lower and longer pins, f, and holds them snugly in place. The moisture is thrown from the yarn in the same way as from the hat bodies, and the currents of air driven up through the vessel dries the yarn with astonishing rapidity. No yarn is represented as being placed in this machine, but a number of hat bodies are shown as being set on the cones, E E. A machine of this kind may be fitted up to dry nothing but hat bodies, or nothing but yarn, or both combined, as shown in the figures.

This machine is a complete mechanical water extractor; it dries goods without fuel, and does so with a very economical use of engine power to drive it. A large machine may be seen in operation at the manufactory of J. H. Prentice & Co., Brooklyn, and inquiry respecting it may be made at the office and store of the above company, No. 166 Water street, this city.

More information respecting this machine may be obtained by letter addressed to Mr. Boynton, at No. 251 Broadway, this city.

Railroad Accidents.

It is a sad fact that far more deaths are caused on American railroads, than on those of any other country. We seem to be a reckless people, and we are accused by foreigners of being wanton in our value of life. As truth is always our guide, we must acknowledge with grief the justice of the accusation. Our neighbors on the other side of the Canadian line appear to be as bad, if not worse, than we are. We do not know whether they admire our recklessness or not, but since they have completed some of their lines, we certainly think they have improved on our practice by an exhibition of the most daring and stupid disregard of life, prudence, and common sense. The late accident which took place on the Great Western Line, whereby fifty persons were killed, was the most destructive of any that has occurred on our continent since railroads were introduced. We hope those who were the cause of it will meet their just reward.

On the morning of Wednesday last week (22nd Nov.) an accident took place on the Harlem Railroad, in the upper part of this city, which for sheer carelessness appears to be without an equal. The passenger train from White Plains came crushing along at the rate of 40 miles per hour, and dashed through a freight train which was running down before it on the same track. No person was killed, but nineteen were wounded—some dangerously. We cannot speak of the causes of this accident in calm terms. The train that was run into was behind time, and the one that ran into it, although it had 400 passengers, and dashed along at such a high speed, had no brakeman on board. Such carelessness and recklessness deserve severe punishment.

In marked contrast with the multiplicity of accidents on our railroads, not a single life was lost on any of the railroads in Prussia, during 1853. Everything is conducton the German railroads, with regard to safety, comfort, and security. Perhaps what we call "enterprise" and "pushing" on our railroads, they look upon as hasty stupidity, and in one sense they are right. Thus it is calculated that the damage in material alone, by the Harlem Railroad accident, amounts to $20,000, and the Company may have to pay about $100,000 for damages to the injured. Caution, prudence, and certainty in the management of railroads is economy in the highest sense of the term. This economy saves life, hurtful injuries, and waste of material; when will our railroad companies learn to practice it.

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The Silk Mauufacture in England.

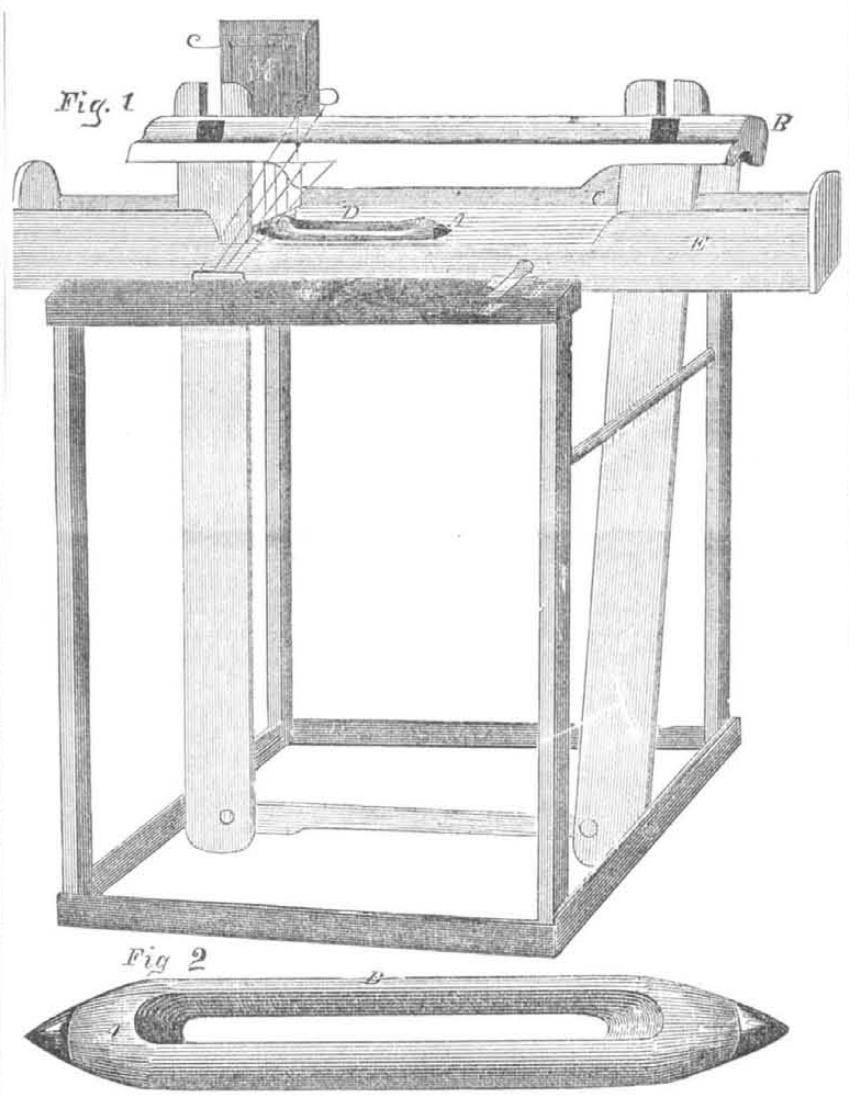
All the silk heretofore manufactured in England, either into cloth or spun yarn, has been from raw silk imported in the hank state, that is wound off the cocoons into hanks by the natives of those countries from which the silk was imported. It was supposed that the winding off from the cocoons could never be performed by machinery, and as hand labor was so much cheaper in China, India, and Italy than in England, it was held by the English manufacturers that the cheapest way for them to obtain it was in the state of raw silk yarn. We learn by the London *Artisan*, that in all likelihood the English manufacturers will hereafter import all their silk in cocoons, and wind it off themselves, at a great saving. This has been effected by the invention of a new machine invented by John Chadwick, a silk manufacturer in Manchester, and T. Dickens, a silk dyer. "The machine consists of an iron framework, about four feet wide, four feet high, and four yards long. On each side there is a row of thirty bobbins, arranged vertically, about eighteen inches from the floor. They are furnished with the ordinary flyers for encircling them with the thread as it is produced; and to each of the sixty bobbins there is a motion, by which each can be thrown out of gear independently of the others. Over the bobbins there are on either side 30 copper troughs or basins containing water at a temperature of about 120 degrees. In each of these troughs float six Syrian cocoons, and the silk reeled from these three hundred and sixty cocoons by means the least complex in their nature. The continuous fiber does not lie in circles upon the cocoon, but describes a form very similar to the figure 8, placed on the surface in a longitudinal direction, thus ∞. As the filament is drawn off, the cocoons have a slight oscillating motion in the water; and to keep them from entangling one another, the basins are provided with brass wires, of proper shape, a little above the surface of the water. Nearly a foot above each basin there projects a wire, about three inches long, covered with some soft woolen or other substance; and over this material each set of six filaments are drawn, the effect being to cleanse them from superfluous moisture, and from any impurities which may adhere to the slender thread. To perform this object, the throwster (in a second stage) resorts to a special winding, the thread being drawn through a groove: since, however, it is then in a dry state, the slight impurities are not likely to be so easily removed from the fragile fiber as when it is moist. After descending from the cleansing part, the six filaments pass through a small curve made of glass, and are received by the flyer, and spun upon the revolving bobbins. By this treatment the winding into hanks, as performed by the silk growers abroad, the winding on bobbins from the hank, and also the cleaning process, as heretofore performed in England by the throwster, are entirely dispensed with; a perfect thread of silk, twisted or spun, being furnished at one operation. So that if the silk be intended for organzine or warp, it only requires the further process of doubling and throwing; but if for tram silk, one process is sufficient, as thread can be easily varied in thickness by simply increasing or decreasing the number of cocoons placed in the basin.

One young girl can easily superintend 30 troughs, and a continuous thread can be produced to fill a bobbin, free from knots or piercings; for as any single filament breaks, the new end has simply to be placed in contact with the other five, and becomes one with the thread; and, as the cocoons end at different places, the whole is produced in the same number of fibers. A bobbin of China silk was inspected of double the fineness of any China silk imported, equal to the finest French thrown silk and calculated to be worth more by 8s. or 10s. per pound than the same kind of silk would have been if reeled from the cocoons in China—a prior process of preparing cocoons for the reeling is carried on in the same room. They are placed for a few minutes in a solution of soap and hot water. By means of a perforated ladle they are then removed to an adjoining trough of warm water, and here, with surprising facility, the principal end of the silk on each cocoon is found by the hand of the girl who discharges that duty. The water detaches the end, and she catches it from the floating surface, sometimes taking up half-a-dozen such ends of silk at a time. A little is drawn off, and then these cocoons are placed in a basin, the ends hanging over the side. The two girls who superintend the reeling fetch them as they may be required, and place them in a trough at the end of the reeling frame, from which they remove them to the respective basins, to substitute the cocoons as they become exhausted of silk. The apparatus strips the silk very perfectly—in fact, down to the thin covering which encloses the chrysalis. It is stated that four pounds weight of cocoons abroad or in France (where reeling has been performed for a few years with an instrument nearly the size of this for two sets of cocoons) will produce 1 lb. of silk, but that by this process more than 1 lb. weight is obtained. A new channel in the business will require to be opened—that of importing the cocoons. These have never been supplied, because they have never been demanded; but we suppose they would follow the usual law in this respect which rules other merchandise, and find their way to a good market.

The patent is drawn so as to secure to the patentees the entire ground of reeling or winding (either with spin or without,) direct from the cocoons, on bobbins or any other surface, so as to dispense with the loose skein of raw silk; and it is not improbable, now the ground is broken, that other machines, with the license of these patentees, may be applied to the same object. We understand that the principle of the invention originated with Mr. Chadwick, and that it has been patiently and perseveringly worked out to its present state of efficiency by Mr. Dickens.—We are persuaded that all who witness the machine in operation will feel convinced of its mechanical merits and commercial importance."

The silk made by this machine is stated by the *Artisan* to be twice the fineness of the China silk which is usually imported, and worth two dollars more per pound, and a greater quantity of good silk is obtained from the cocoons—there being less refuse—than by the hand process, or by another apparatus which has been in use for two years in France.

IMPROVEMENT IN LOOMS.



The annexed figures are views of an improvement in looms, for which a patent was granted to George Yates and Eli Clayton, on the 13th of last June.

Figure 1 is a front perspective view of the loom showing the lathe and shuttle box, and figure 2 is a perspective view of the shuttle. The object of the invention is to prevent the shuttle from flying out of its raceway, and thus also prevent breakages of the reed, &c.

A is the shuttle; it has a groove on its upper side corresponding with the groove in the lathe cap, B. The shuttle passing to and fro is prevented from flying out, by the edge, C, of the groove in lathe cap B, which edge, when the shuttle rises over cross threads or other obstructions, immediately fastens into the groove of the shuttle, and keeps it in its proper course, and thus the edge, D, of the groove in shuttle A, and the edge, C, of the groove in lathe cap B, acting against each other, are perfect securities against accidents, by preventing the shuttle from flying out and injuring the operator, and also in case of any obstruction by a thread of the web breaking, by which the shuttle is made to rise over the cross threads. The advantage of this invention is, that the operator can immediately take up the warp threads, and repair the broken thread, which is frequently occurring, without the inconvenience of having first to remove guide rods or other devices, which are serious obstructions in causing delays in such repairs.

"The advantages of our improvement," say the patentees, "on the ground of economy and simplicity are great; from 20 to 30 per cent is saved; the numerous devices of levers, rods, springs, brackets, as in other looms, are dispensed with."

The claim is for the grooved shuttle in combination with the grooved lathe cap, for the purposes set forth.

The object of this invention is a very excellent one and deserves general attention.

For further particulars inquire of George Yates & Eli Clayton, patentees, Gloucester City, N. J.

Paddle Box Life Boats.

Thomas Hodgson, of Brooklyn, N. Y., has taken measures to secure a patent for an improvement in paddle wheel life boats. The upper part of the box of the paddle wheel is constructed in such a manner that it can be readily detached from the ship and launched, so as to serve for a life boat in case of an accident. This part, of itself, is not new and not claimed. The improvements of Mr. H. consist in the adaptation of the upper parts of paddle boxes for the purposes named. The steps leading to the top of the paddle box are so made that they can be converted into tanks for holding fresh water, lockers for containing provisions, and also air chambers for proper buoyancy. Arrangements are made for this adaptable paddle box to carry a mast, and to be so slung that it can be launched with facility and certainty, and answer for a paddle box, as well as those in ommon use.

Valve Motion for Direct Action Engines.

In double acting direct action engines, whose power is transmitted directly from the piston rod without producing rotary motion, and consequently not employing a fly-wheel, considerable difficulty is experienced to obtain a perfect means to operate the slide valve, for when it is driven by an arm on the piston rod acting on a tappet, the steam is cut off when the valve has only made one-half of the necessary movement for reversal, and if the resistance is great the piston stops, and as it can move no further, some other means are required to complete the stroke of the valve to open the steam port for reversal. To remedy this defect in direct action engines, Messrs. G. W. Hubbard, of Brooklyn, and W. E. Conant, of Green Point, Long Island, N. Y., have taken measures to secure a patent for an improvement, by which the slide valve and its tappet rod are connected in such a manner as to allow either a certain amount of motion independently of the other, and so combining them with the action of the steam piston that the valve is effectively carried past the center, and the port opened to its full width for reversal.

Rotary Metal Lathes.

A valuable improvement has been made in lathes for turning metal work, such as cranks, shafts, &c., by Geo. Tugnot, of this city. Instead of having the cutter placed on a longitudinal sliding stock, as in the common metal lathe, the tool rest is placed inside of a rotating cylinder, and the tool to traverse round and along the article to be turned, the latter being secured in the center of the rotating cylinder. This lathe is designed to turn bulky and unwieldy masses of machinery, such as the cranks and shafts of large engines with accuracy, and with greater facility than in the common lathe, the dimensions of which must be such as to swing and rotate the article to be turned, however large it may be. The cost of a lathe large enough to turn the crank for a first class steamship is about $6,000; a lathe constructed on Mr. Tugnot's plan can be constructed for one-twentieth that sum. It also occupies a much smaller space, and is more simple and convenient than the common lathe, consequently heavy articles can be turned by it at less expense. One or more tools and rotating rests can be employed in the rotating cylinder, so that articles may be turned in it with great rapidity.

Hot Air Furnaces.

Abel H. Bartlett, of Kingsbridge, N. Y., has taken measures to secure a patent for an improvement in hot air furnaces, the nature of which consists in a peculiar arrangement of the air heating passage and flue, whereby the air is made to pass successively in thin currents between broad hot surfaces forming the flue; the hot air crosses the flue at right angles when it passes upwards. A chamber surmounts the flue for the purpose of receiving any carbonic acid gas that may escape, so that none of it will be permitted to mingle with the hot air, as thus the latter will be kept pure for heating.

Silver ore has been found in many places in California.

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New Inventions.

Hill's Smoke-Consuming Stove.

On the 17th of last October a patent was granted to E. A. Hill, of Jolliet, Ill., for the Smoke Consuming Stove represented in the annexed engravings. Figure 1 is a front view representing the design of the stove; figure 2 is a vertical transverse section of the stove, and figure 3 is a vertical central section of the same taken at the line, *x x*, figure 2. The same letters refer to like parts.

The object of this invention is to render the consumption of smoke more effectual in parlor stoves by having the stove divided into two fire chambers, in which the smoke arising from each fire (when fresh coal is put on) passes through the red hot coal of the other fire, so as to burn the smoke before it passes up the pipe.

A represents the outer case of the stove; B B′ are two fire chambers formed in the same; C is the smoke passage or space formed between the chambers, B B′; D D′ are the grates. They are made capable of being turned from a horizontal to a vertical position, so that the ashes may be dumped with ease; E E′ are the ash pits, they are partly prevented communicating with each other by a partition; F is the damper for completely shutting off the communication of the chambers, B B′, at their top; and F′ is the damper for entirely shutting off the communication of the ash pits with each other, as illustrated in figure 2. These dampers are attached to the rods, *c c′*, and are turned by the crank *d d′*, of said rods from the positions shown in full black lines to the position shown in dotted lines, and vice versa. By employing these dampers the smoke can always, if desired, be caused to pass down through the passage, C, into either of the ash pits, and then up through the grate and live coal of either of the chambers, as will be presently shown in describing the operation of the stove.

G G′ are draught flues, taking the coldest air and carbonic acid gas from the room, and conducting it into the fire chamber, B, through *f* at *g*, or into B′, through *e* at *h*—*e* and *f* being branches of the flues, G G′. When the dividing dampers, F F′, are in the positions shown in full lines in figure 2, the damper, *g*, is opened, and *h* is closed, allowing the draught from G to enter the fire in B, through the branch flue, J, as indicated by the arrow, 1; but when said dampers are in the positions shown in dotted lines, *h* is opened and *g* is closed, the draught from G′ then entering the fire in B′, through the branch flue, *e*; *e′* and *f′* are dampers in the upper part of the flues, *e* and *f*, to allow the escape of the hot air, thereby cooling their internal plates when *g* or *h* are closed.

The upper extremity, *i i*, of the flues, G G′, figures 2 and 3, may be made to communicate directly with the large chamber, A, by opening the dampers, *l l′*, thereby diminishing the force of the draught, and at the same time preventing the smothering of the fire by the smoke. When it is desired to stop the draught entirely to keep the fire all night, the dampers, *l l′* are opened, and both *g* and *h* are closed, all the draught then entering through *i i*, as indicated by the arrows 2, figure 3; H is a ventilator flue for supplying—without any contingency—pure hot air in the place of that carried out through the flues, G G′. It is connected at its lower end with a horizontal pipe, I, which leads out of doors and supplies cold fresh air to it, as illustrated by the arrows, 3. J is the chimney flues; K K are the doors through which the coal is introduced to the fire. One of the doors is shown open in figure 2.

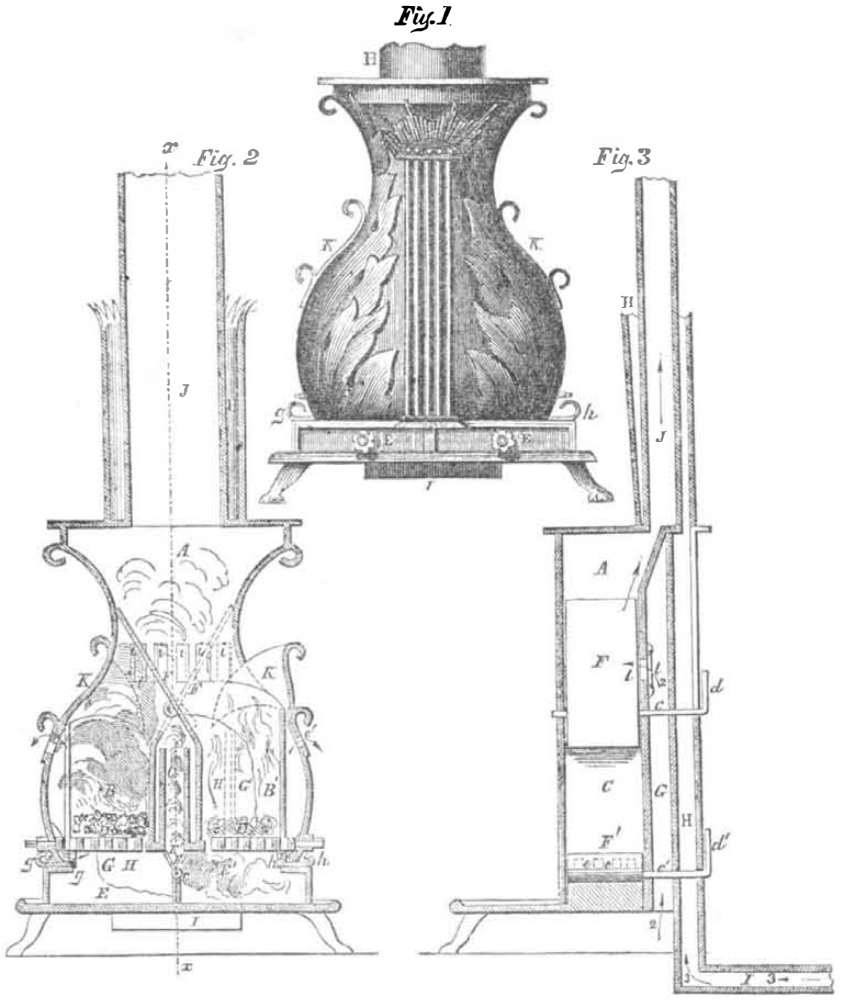
The operation is as follows:—A coal fire is first built in one of the chambers, B, for instance, and as soon as it burns lively, as illustrated in the figure, a fire is started in the other chamber, B′, and as soon as it has sufficient life to insure combustion, the dampers, F F′, are made to occupy the positions shown in black lines in figure 2; the damper, *g*, is opened and *h* closed. This being done, the smoke will be caused to change its course after reaching the damper, F, and pass down through the passage, C, into the ash pit, E′, and then up through the grate, D′, and red hot coals of the chamber, B′. As soon as the smoke comes in contact with the coal in the chamber, B′, it will ignite and consume. Figure 2 clearly illustrates the principle of the invention, a fire being shown in full blast in one chamber, and a thick volume of smoke rising from the coal in the other chamber, and passing down into the ash pit and up through the grate, D′. When the fire in B′ is spent, and the fire in B is in full blast, the process and the position of the dampers are reversed.

The two claims embraced in this patent were published on page 54 of the Scientific American. Measures have been taken to obtain a patent for the design, figure 1, so as to have the ornamental secured with the useful. This stove is designed for the burning of bituminous coal, which is now the principal fuel in many parts of our country, and which will soon be the most general. We sincerely recommend it to the attention of the people of Pittsburg. We believe it embraces good features, and should receive the patronage of those who burn bituminous coal. Cooking stoves may be made without the inlet pipe, I H, so as to adapt them for any house. It will no doubt be the means of saving fuel, as well as destroying the smoke nuisance.

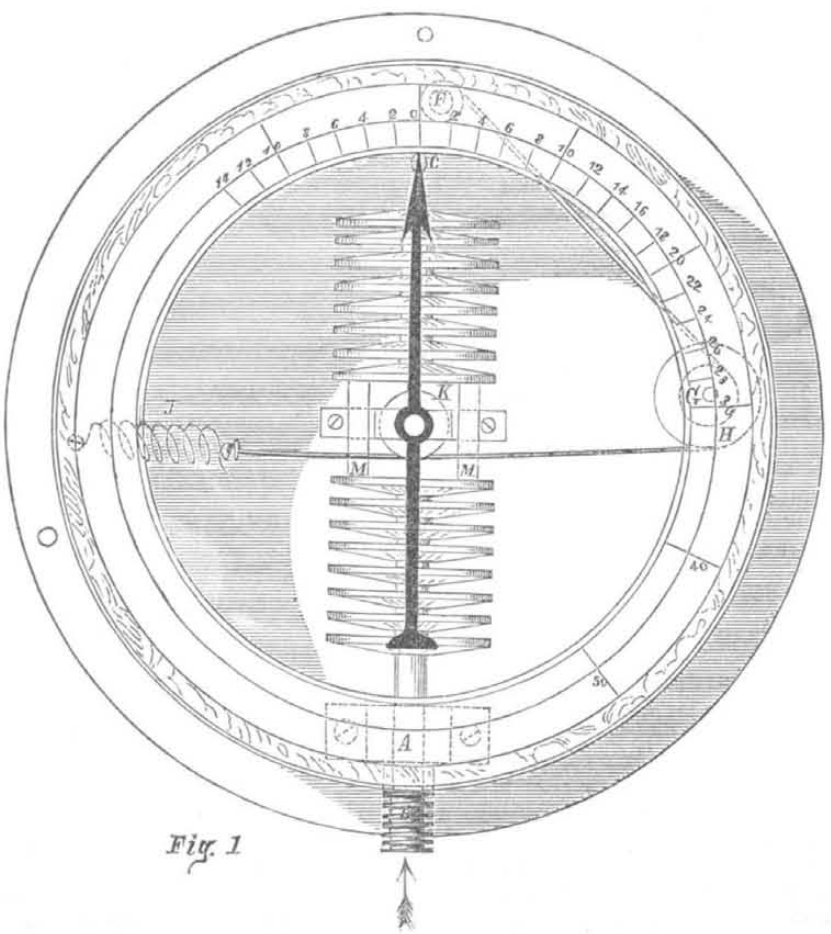
More information may be obtained by letter addressed to the patentee.

SMOKE CONSUMING STOVE.

Fig. 1



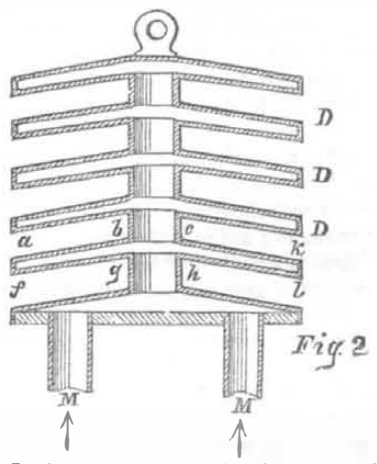
BEAUMONT'S STEAM GAUGE.



The annexed engravings represent an improvement in Metallic Gauges, for which a U.S. patent was granted to Victor Beaumont.

Figure 1 is a perspective view. Fig. 2 is a vertical section of the gauge proper, exhibiting the claim of the patentee.

The principle of the instrument is, that when steam is introduced into a close vessel it will inflate it, the inflation being dependent upon the pressure of the steam, and upon the elasticity of the material the vessel is made of. In applying this principle to the making of steam gauges one, has to keep in mind, first, to give the closed vessel such a shape as will make that inflation work mostly in one direction. Second, to dispose it in such a manner that the variation be proportional to the pressure; in other words, that if the vessel extend one-eighth of an inch for one lb., it extends two-eighths for two lbs., three-eighths for three lbs. Third, that the material with which steam comes into contact be not altered by it, as iron or steel would be, in rusting; or by its temperature, as india rubber necessarily would be.



In the present case, the closed vessel is formed of a series of conically shaped chambers, D D D, communicating together by means of center pipes, *b c g h*, &c., each of these chambers is limited at the top way by a cone made of thin copper or brass, which, when steam is introduced, will extend, and will become a more pointed cone, and it is limited at the bottom way by another similar cone, which, contrary to the first, will be compressed by steam, and will become less acute than it was. The extension of the first cone, *a b c k*, will be less and less perceptible when its pressure increases; that is to say, that if it extends one-eighth of an inch for the first ten pounds, it will extend one-tenth only for the next ten lbs., one-twelfth for the third ten lbs., &c., but at the same time, the compression of the second cone, *f g h l*, will be more and more perceptible when the pressure increases, and will increase in the same ratio as the first decreases, so that the one compensates for the other, and the two motions added together will give the same amount for each successive pound. The material used is copper in sheets, soldered together with tin, copper and tin are not altered by steam.

The instrument, fig. 1, is screwed at B, on a steam pipe from the boiler; the steam enters it through the pipe, A, fills the several conical chambers below the center, and through the pipes, M M, passes into the upper part. The pipe, A, is attached to the box, and the end, C, is free to play according to the pressure. The motion of this end, C, is transferred to an axis, K, by means of strings and pulleys, E G H, and a tension spring, J, or by means of levers and cogwheels. The motion of the axis is shown by that of a needle on a dial, on which the corresponding pressure is marked. If the instrument be put on the condenser, the needle will move backward, and indicate the number of pounds below atmospheric pressure.

We understand that the inventor wishes to dispose of part of his right; information on that head may be had by applying to his office, 74 Broadway, New York.

Water Pipe Design.

There is a dispute between Birkenbine & Trotter, of Philadelphia, and Henry Howson, of Camden, in respect to the authorship of the design of the water pipe illustrated in No. 8 Scientific American. It is claimed by each party, and to render the matter more interesting, each party furnishes affidavits respecting authorship. It is a matter of very little consequence to our readers, and we shall not lumber our columns with it.

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Scientific American.

NEW YORK, DECEMBER 2, 1854.

The French Industrial Exhibition.

Our readers have already been made aware of the grand Exhibition of the Industry of all Nations, which is to be held in the city of Paris next year; also of the extensive preparations which have been in progress for a considerable period to make such a World's Fair worthy of the name of France. All our people who had an opportunity of visiting the N.Y. Crystal Palace will not readily forget the great variety and beauty of the articles displayed in the French Department, and how Louis Napoleon himself became an exhibitor by sending over some of the finest specimens of Sevres porcelain and Gobelein tapestry from the Royal Palace. This was an evidence of the great interest which the people of France took in what they considered was a national affair with us—the President of the United States having been present at its inauguration, and every effort made to give it a national character. A decent respect for ourselves and the opinions of civilized nations, should have induced us, as a people, to reciprocate such feelings as the French manifested towards us; but whether from thoughtlessness, or some other causes unknown to us, (we cannot attribute it to a want of that generosity which belongs to our people,) we cannot tell, but no general interest has been manifested to have our country honorably represented by the handiworks of her ingenious sons, in the Great Paris Exhibition. With the exception of Alabama, no State in the Union but New York appointed Commissioners, through whom alone the French Government could communicate with exhibitors, and of the three who were appointed, two were residing abroad, and only one—Mr. Wales, the Commissioner of this State—remained at home to act for, and advise those who desired to become participators in the glory of the exhibition, and to him alone our people are indebted for any efforts that have been made here to do honor to our country in Paris next year. It appears rather strange to us that our general Government, which was so sensitively alive to the British National Exhibition, by appointing Commissioners, and sending a frigate to England with the articles for exhibition, should have been so sublimely indifferent to the World's Fair in France. Political cabals, more than national generosity and true glory, seem to rule the counsels of the nation at the present. If this is not so, why was not something done, as in 1850, to interest our people in the approaching French Exhibition? Frenchmen stood shoulder to shoulder with our fathers in the great struggle for our Independence, and that even while France was under the old Regime; and perhaps it is not too much to assert, that without their aid, our success would have been doubtful. In Washington's last triumph at Yorktown, he was assisted by a French fleet and army. Have we become ingrates that we should forget these things? We hope not; our people are not ungrateful, and yet we are afraid that the French will think we are, for they expected much from us at the coming Exhibition, and will be disappointed. The time is now past for the reception of applications for space to exhibit, and our countrymen, we regret to say, will make but a small display. Mr. Wales, when appointed Commissioner, took measures to bring the subject prominently before our people, but he could not do all things himself; what he has done, however, will not be discreditable to our country. Those of our countrymen who have taken measures to become exhibitors will find their articles properly positioned and respectfully treated, and we have no doubt but we shall have the pleasure of recording the praises and compliments of the people of France next year, respecting the ingenuity and usefulness of many of them. Our only regret is that American exhibitors are to be so few in number, for we have a high idea of what our people can do, and a sensitive feeling respecting what they should have done, and we are positive that the French Industrial Exhibition will do honor to all those who have seen fit to honor it.

Whoever is fortunate enough to witness it will be surprised at its extent and magnificence.

Important Correction by the Patent Office.

We take great pleasure in announcing that the late stringent rule whereby the dimensions of all new models were suddenly ordered to be curtailed, and against which we have, for a month past, felt it our duty to remonstrate, *has been annulled* by the Commissioner of Patents, and the more reasonable one of February 20th left in force.

The Commissioner informs us by letter that the rule of October 23rd was promulgated by mistake. That after having been drawn up and signed, he became satisfied that it would require material alteration, and he accordingly ordered its suppression. By some mistake of the clerks, however, the document was unfortunately sent out, and we, among others, received an official copy.

It is a great relief to us to be able to make this statement. The prompt action of the Commissioner in correcting the error is in the highest degree commendable, and is characteristic of him as a man. Without attempting to justify himself, or to set up an excuse, he at once and unqualifiedly withdraws the obnoxious rule, and assures us that its circulation was unknown to him, and was not intended to be enforced.

That it *was* enforced, and most vigorously too, by some of the officials at the Patent Office, the long list of inventors who have been compelled, since the 23d day of October last, to make payments for the razeeing of their models, abundantly testifies. Those who have charge of the models undoubtedly received a copy of the erroneous rule, in common with ourselves, and they have innocently obeyed what they supposed to be a bona fide order, in making the severe exactions from inventors to which we have referred.

According to estimates given in another part of our paper, it seems evident that the entire model system is destined, ere long, to die a natural death. We are glad of it. It is a false system, and has always caused more trouble, both to the Patent Office, and to inventors, than it is worth. In England, which has the most perfect patent system in the world, and where the rights of patentees are much more thoroughly protected than here, no models are required or needed.

A Windfall for Some One.

By reference to another column it will be observed that a legacy, bequeathed to some fourteen different persons, names unknown, is payable in hard cash in this city, on or about the first of January next, on the presentation of proper proof. Not the least curious part of the matter is, that the bequest is intended for certain individuals *who are readers of the* Scientific American.

We call the special attention of all our subscribers to this fact, because we think they are all interested; since, under the terms of the bequest, it would appear that the lucky personages will be those who make *the most vigorous efforts* to get the money, irrespective of their names or pedigrees.

The donors' object, evidently, is to promote the diffusion of knowledge in regard to Mechanics, Science, Art, Invention, &c.; also to stimulate the perseverance of the applicants. The amount of the legacy is five hundred and seventy dollars—not a large sum, to be sure, but still worth having, when money is so scarce and times so hard as at present.

Another apparently singular feature of this bequest is, that the sum named is divided into fourteen distinct portions, each of a different amount, the largest being $100 and the smallest $10. There are to be as many different applicants as there are portions; each applicant will infallibly receive the money to which he is entitled.

Modesty has thus far hindered us from presenting a more explicit exposition of this practically benevolent project; but we feel that at this stage of the subject we must be definite. The donors referred to are the proprietors of the Scientific American, and the bequest is contained in their liberal prize list, which foots the lower corner of this very page. Applicants for shares in the legacy have only to take a subscription paper in hand and canvass the neighborhood where they reside for subscribers to the Scientific American. Whoever obtains the largest list of names between now and the first of January next, will carry off the highest prize. To accomplish this, he may go into partnership with some enterprising individual, and they may unitedly push their efforts into adjoining towns and counties; or a club or society may combine for this object. No matter where they go or how they operate, so long as they obtain the largest list of names, the due proportion of the bequest will be theirs. If a competitor for the largest portion happens to fail, he will be almost sure of obtaining the next largest prize, or the next, or the one following that. All of them are cash prizes, and are well worth trying for.

Now, we put this question to all of our readers, especially to those who happen to find in their pockets, at this time, an inconvenient absence of funds. Do you want, nay, *will you accept* of this liberal legacy? Here it is. We hold it up plainly to your view.—You have but to say one word. If you say YES, then put forth your hands—bring out your subscription list—comply with our published terms—*and the money is yours.*

The Model System—How long shall it be continued?

Nearly thirty thousand models have already accumulated in the U. S. Patent Office, and the establishment, although spacious, will soon be over-crowded. The average increase in the number of models received for the past ten years, is about twelve per cent. per annum. Should the same ratio of increase continue for the next twenty years, as it undoubtedly will, the large number of two hundred and sixty thousand models will have been added to those already on hand; while the receipts of models for the single year of 1874 will be almost *thirty-two thousand.*

If this system of models is to exist even for the short term of twenty years more, it is high time that new buildings were in progress for their reception. Three edifices as large as that now occupied, will then be required to contain the models on hand, while the number received for the year 1875 alone, will occupy nearly one-half of a fourth building. In these estimates we include the increased space in the present structure which the new west wing will afford when completed; and also the space at present occupied by the National Museum, Department of Interior, Land Office, &c.

The Patent Office building has been nearly twenty years in course of construction, and it is not yet finished. To our minds the prospect of having three more of them ready, in twenty years from this date, is a dubious one, if we are to rely upon the *do-nothing* legislators of this day.

The present system of preserving models is an absurdity. Its long continuance is a physical impossibility. The quicker it is abandoned the better. Inventive genius is now only in its infancy. Each new mechanical improvement is the parent of hundreds of other better ones, shortly to follow. To house models of them all is out of the question. To spend any more money in such a fruitless endeavor is a waste.

In the hands of the patentee models are invaluable as exponents of his invention, and as assistants in the disposal of his rights, or in the construction of larger machines. But to a government like ours their continual aggregation is perfectly useless, and the requirement of their construction, at the cost of the inventor, therefore a wrong. Good drawings and clear specifications are all that should be demanded from him, for these are all that are necessary for the proper protection of his claims. The models now in Washington have cost not less than half a million of dollars. If the system is carried on twenty years longer, the law will have extorted the sum of five millions of dollars from the pockets of poor, struggling inventors for the original construction of models. Nor is this all. Still larger sums will be required from inventors to pay for the building of houses, and the support of officials to classify, arrange, and take charge of these same mechanical miniatures.

We trust that among the amendments to the patent laws to be brought forward at the approaching session of Congress, one of them will authorise the immediate abolition of the model sysfem. Such an act, while it would vastly benefit the mechanical resources of the country, would also remove a great incubus from the business of the Patent Office.

If Senators, Representatives, and other officers of the government, desire to make the Patent Office a "paying concern," if they wish at the same time to promote the interest of inventors, let them at once lop off this "model" parasite.

Steam Brake.

Wendell Wright, of this city, has taken measures to secure a patent for an improvement in brakes to be operated by steam for arresting the progress of a train of cars. A pipe leads under each car, and when one is disconnected from the other it is always closed, but when the pipes of a train of cars are connected, there is always open communication between them. The force applied to the brakes is governed by the weight of the car and its contents, and will be caused to be always proportionate thereto. The steam closes the back end valve of each tube, so that if one car is detachad from another, its valve closes and keeps all close; the front end of each tube, as it enters the pipe in the car before it, opens the valve to allow free passage for the steam through all the pipes. The brakes can be operated by compressed air as well as steam, but in that case, the air has to be compressed by pumps worked by the engine, therefore steam is the best force, as the steam applied to the brakes can be well spared for such a purpose. The application of steam to work the brakes of cars is not new; this invention is an improvement over those previously invented and tried.

Fire and Burglar Proof Shutter.

Geo. F. Austin, of Milwaukie, Wis., has taken measures to secure a patent for an improved kind of metallic shutters, consisting of two or more plates which slide up and down upon vertical rods, and the top and bottom edges of which have flanges so formed on them that when they are let down they catch into one another and combine into one, forming a very secure shutter. The lower plate is attached to balance weights, and by pushing it up the one plate is set behind the other, thus compacting it into a very small space during the day time. A spring bolt secures all the plates which form the shutter, during night, and of course it has to be released before the shutter can be opened.

Steam Boiler Explosions.

We are indebted to James H. McCord, engineer, St. Louis, for documents relating to the explosion of the steamboat Timour No. 2, and on fusible plugs and safety guards. We will endeavor to peruse these carefully, and review them in our next number.

$570 IN PRIZES.

The Publishers of the Scientific American offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

$100 will be given for the largest list,
$75 for the 2nd, $35 for the 8th,
$65 for the 3rd, $30 for the 9th,
$55 for the 4th, $25 for the 10th,
$50 for the 5th, $20 for the 11th,
$45 for the 6th, $15 for the 12th,
$40 for the 7th, $10 for the 13th,
and $5 for the 14th

The cash will be paid to the order of each successful competitor; and the name, residence, and number of subscribers sent by each will be published in the Scientific American, in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new Prospectus on the last page.

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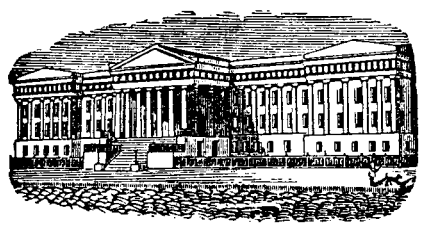

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING NOVEMBER 21, 1854.

FOR LUBRICATING THE CYLINDERS OF STEAM ENGINES.—John Absterdam, of Boston, Mass.: I claim placing the lubricating reservoir remote from the boiler, and interposing between the oil and the boiler, water, air, or other substances which will communicate the pressure from the boiler to the oil, and thus keep the oil from being heated, and yet feeding it to the surface to be lubricated by the pressure from the boiler, as set forth.

HAND BRICK MOLDS—Clark Alvord, of Syracuse, N. Y.: I am aware that discharging pistons are used in the molds of brick machines of various kinds, where the pistons are thrust up by mechanical means, and therefore I do not claim this device.

But I claim the application of the discharging piston to the hand mold, substantially as set forth.

PAPERING WALLS—H. F. Baker, of Centreville, Ind.: I claim the manner in which I arrange and combine the several parts specified, for the purpose set forth.

SAUCE PANS—H. F. David, of Ipava, Ill.: I claim my improved manner of opening and closing the cover of a sauce pan or stew pan, and of retaining the same in an open position, viz., by means of the combination of said cover with the rod, d, which passes through the hollow handle of the pan, and is supplied with a spring catch, substantially as set forth.

MACHINES FOR CLOSING SHEET METAL BOXES—Chas. G. Everitt, of Brooklyn, N. Y.: I do not claim the roller shafts, B F, nor the roller heads, G C, for they have been previously used.

But, first, I claim the arrangement, as shown, of the driving shaft, J, and upper roller shaft, F, with the adjustable sliding boxes, D, springs, H, and treadle, I in relation to the lower shaft, B, and frame of the machine for the ready adjustment and adaptation of other roller heads, and for the putting in and taking out of the sheet-metal articles being made.

Second, I claim the arrangement of the adjustable spring frame, o, with its adjustable friction rollers, m, and in relation to the roller heads, C G, for the purpose of guiding and sustaining the sheet-metal pieces of various shapes and of different widths, as shown and described.

VALVE GEAR FOR LOCOMOTIVE ENGINES—James Freeland, of Allegheny, Pa.: I claim the employment, for the purpose of transmitting motion from the eccentric or its equivalent to the slide valve, of a rock shaft, A, carrying the eccentric arm, B, which is connected with the valve arm, D, on the usual valve shaft, C, by means of a connecting lever, G, on arc formed slot, I, a rocker, F, and links, J, K, all arranged, combined and operating substantially as described, to give the valve the whole or the greater part of its movement during a comparatively small portion of the revolution of the eccentric or its equivalent.

CLEANING CARDS OF CARDING ENGINES—Saml. Greene, of Woonsocket, R. I.: I claim the application of the clearer cylinder and wiper, as described, by which the impurities of the cotton are taken out and formed into a bat.

SHINGLE MACHINE—Adoniram Kendall, of Cleveland, O.: I claim, first, the hopper, G, slide catch, G', and slide rests, G'', with the attachment of the spiral springs, I, and elliptic springs, K; this combination I claim separately and combined with the driver, F'', for the purpose specified.

Second, the combination of the sliding key, d, strap, c, cross piece, b, and spring, e, for the purpose of holding the shingle, while it is being squared by the fingers, U, as described.

Third, the levers, W W', tumbler, a', fingers, V, slide, X, and spring, X', operating by means of the grooves, j j, and cams, Y Y, for the purpose of squaring the shingle by the fingers, so that the edges will be jointed square with the butt.

Fourth, the circular grooved cams, f and f', in combination with the levers, g g, connecting rod, h h, spring, l l, right angled levers, i i, and adjustable knife blocks, R R, operating in the manner specified, which I claim, either separately or in combination with the guides, m m, levers, o o, and o'' o'', for the purpose set forth.

Fifth, I claim also the combination of the reciprocating carriage, F, with the driver, Q, operating in the manner and for the purpose described.

KETTLES FOR CALCINING PLASTER OF PARIS—Jerome B. King, of New York City; I do not claim a conical or arched bottom kettle in itself.

But I claim the method described and shown of fitting a conical or arched bottom to kettles for calcining plaster, so that the same shall be allowed to slide on its bearings as it expands and contracts, for the purpose specified.

SEEDING PLANTERS—G. W. Lee, of Ercildown, Pa.: I claim the scores, o o, or their equivalents, at the extremities of the holes, c, in the disks, M, in combination with the gradual narrowing of the holes towards their extremities, so as to save the grain from being cut between the ends of the hole, c. and the edges of the hole, b, substantially as described.

I am aware that perforated disks with holes of various forms have long been in common use in seeding machines, therefore I make no claim to the disks, but only to the shape or form of the end of the hole in the disk, for the purposes set forth.

PACKING SLIDE VALVES IN STEAM ENGINES—D. B. Martin, of Washington, N. J.: I claim the mode set forth of packing balanced slide valves, the same consisting in the attachment of the packing to the bonnet of the steam chest, whereby I am enabled to adjust the packing while the engine is in motion, all substantially as set forth.

ATTACHING LIFE PRESERVERS TO VESTS—R. L. Nelson, of Ocala, Florida: I do not claim making a life preserving vestment, when the buoyant properties thereof are permanently attached or fixed to it.

But I claim the method described of arranging a removable life preserver in a vest or other garment, so that it may be worn with or without it, and so that the fastenings of the garment shall serve to secure the life preserver properly to the person, substantially as described.

ARRANGEMENT OF PENCILS FOR DRAWING MACHINES—Mighill Nutting, of Portland, Me.: I claim the combined arrangement and the application of the pencils, as set forth.

SEWING MACHINES—Chas. Parham, of Philadelphia, Pa.: I claim the shuttle carrier and driver, A, constructed substantially as shown and described, and forming the bearing or seat for the shuttle. B, during its travel, as well as the guide for it on that side coming in contact with the thread loop formed by the needle, and freely admitting of the passage of the shuttle through the loop, when the said carrier is arranged and combined for operation together with the needle and with the guide plate, c, or its equivalent, on the needle side of the shuttle, essentially as set forth, whereby the shuttle is relieved from all friction or rubbing bearing on its thread side of the loop, the thread is prevented from being soiled or injured by lubricating material and increased freedom of action is given to the shuttle, as specified.

SPINNING FRAMES—William Perry, of Graniteville, S.C.: I claim a movable band or bands, whether made endless or otherwise, of cloth or some other material, so constructed that it may be traversed upon the bobbin rail under the bobbins each side or between the spindles to graduate the friction under the bobbins, and adjust the drag of the bobbin to suit the yarn being spun upon the frame, substantially as described.

MANUFACTURING WIRE ROPE—J. A. Roebling, of Trenton, N. J.: I claim first, operating the top wagon, by the same driving rope which operates the twisting machines, for the purpose of regulating the advance of the top in proportion to the twist.

Second, the propulsion and operation of the center strand counter twist machine by the same driving rope which actuates the main twist machine, for the purpose of insuring a perfect correspondence between the motion of the two machines, and at the same time to insure the proper tension of the center strand by keeping it exposed to the action of a freely suspended weight.

Third, the combination of the two sheaves with the hollow shaft for operating the endless rope, and to operate the main counter twist machine.

Fourth, I further claim the whole arrangement, as described, for operating the main counter twist machine by means of an endless driving rope, which is kept under a great tension by a suspended weight, and being at liberty to rise allows the machine to advance as the strands shorten, and at the same time insures a constant and uniform tension.

Fifth, the peculiar arrangement for lowering the weight box without slackening the driving rope, by the application of a break, friction wheel, and check wire, in connection with a windlass and spur gearing, or the mechanical equivalent therefor, and in combination with the sled and transfer sheave, P.

MACHINES FOR THREADING SCREW BLANKS—Elliot Savage, of Berlin, Conn.: I claim, in the described screw threading machine, the manner in which its screw blank rest or carriage is moved in order to form a conical or approximately conical or tapering end to the tail part of the screw blank, in connection with a cylindrical body and a helix or screw thread thereon, such movement consisting in turning the screw blank with respect to the chaser, and subsequently causing it to descend in a vertical line, all substantially as explained.

FURNACES—J. L. Stevens, of Kensington, Eng. Patented in England, Oct. 1, 1852: I am aware that previous arrangements have been made of sets of fire bars placed over each other and that various other means have been proposed for increasing the combination of fuel and for consuming or lessening the formation of smoke. I do not therefore claim such arrangements or means otherwise than mentioned.

I claim, first, supplying the lower fire bars, C, with ignited fuel from the upper bars, D, in the manner and for the purpose described.

I also claim the combination of the double fire bars with the plate, F, for dividing first and then uniting the gases of each when said fire bars are fed with fuel through one door and have a fire bridge which is common to both, substantially as described.

INHALING APPARATUS—S. H. T. Tilghman, of Snow Hill, Md.: I expressly disclaim the parts composing my apparatus separately considered.

I claim the combination of worm, a, tubes, c and f, mouth piece, m, bellows, F, and distilling vessel, c, constructed and arranged substantially as set forth, for furnishing medicated air in a comparatively dry state and assisting the respiration of the patient in inhaling it, as specified.

CLOTHES CLAMP—W. H. Towers, of Philadelphia, Pa.: I claim securing clothes or other articles on lines by impinging or pressing them between the line and the grooved ends of the clamp or button, having a block at its center through which the line passes out of its usual line, in the manner set forth.

DRESSING MILL STONES: T. W. Trussell, of Winchester, Va.: I claim the rounding off and polishing the feather edge or sharp cutting ridge lines of mill stones, and reducing all the intervening burr or granulated face to a smooth surface, in the manner and for the purpose set forth.

LAMPS—Isaac Van Bunschoten, of New York City: I claim the means described of confining a thick solar or argand wick to the metallic wick holder by a finely wove wick or covering, for the purposes and substantially as specified.

I claim the cone, d, in combination with the cone, e, and circular plate, 13, around the wick tube, to check any sudden draught and prevent the same passing to the flame, in the manner substantially as specified.

SEED PLANTERS—Milan Waterbury, of Cuba, N. Y.: I claim, in combination with the cap or scroll, D, the peculiar form of the cells, that is to say, the receiving of the grain into the shallow part of the cell, from whence it gradually shifts into the deeper part thereof, and kept from falling out of the cells by the cap or scroll, by which means the packing or choking of the grain in the cells is entirely avoided, substantially as described.

HEMP ROTTING PROCESSES—William Watt, of Glasgow, North Britain. Patented in England, May 22, 1852: I claim the application to flax, straw, and similar vegetable fibrous substances of a current of steam and hot water, or hot water alone at a temperature of not less than one hundred and fifty degrees Fahrenheit, substantially as described, for the purpose of carrying off the volatile matters of such substances and dissolving and removing their nitrogenous and other extractive matters in the manner described, without the aid of fermentation, acids, or alkalies.

SURGICAL FORCEPS—Mary Ann Loomis, extrx. of Joseph G. Loomis, dec., late of Philadelphia, Pa., (assignor to W. A. Gardiner, of Philadelphia): I do not claim the invention of the surgical forceps.

But I claim the improved rotary joint by means of which the instrument may be introduced with one scoop and blade resting within the other, and the instrument then rotated and opened for operation.

SCYTHE FASTENING—T. C. Ball, of Shelburne Falls, Mass. (assignor to Nathl. Lamson): I do not claim the using of a cam or eccentric for confining a scythe, nor the band and extension plate.

But I claim the slide, D, with its fulcrums, F F, and its corresponding recess, E, in connection with the leverage of the shank, K, substantially as set forth.

PRESSER BAR FOR PLANING MACHINES—Harvey Snow, of Dubuque, Iowa (assignor to Jas. A. Woodbury, of Winchester, Mass.: I claim combining the presser bar, H, with the rotary cutters, so as to secure the same relative position of the inner edge of the bar, and the path of the cutting edge in holding and cutting the surface of a board throughout its varying thickness, substantially as described.

APPARATUS FOR DRYING CLOTHES—Stephen Woodward, of Sutton, N. H.: (assignor to himself, J. P. Nelson, and A. C. Carroll: I am aware that a clothes dryer has been made with a series of radial arms applied and made to turn on the top of a post, I therefore do not claim such.

But I claim my improved clothes dryer, constructed substantially as described, or so as to enable the series of arms not only to rotate on the post, but to be elevated and depressed as described, and so as to remove the clothes out of the way of a person, and to carry them into higher atmospheric currents, as explained.

RE-ISSUE.

RAKE TO HARVESTING MACHINE—Sylvanus Miller, of Urbana, Ohio. Originally patented July 15, 1851: I claim the guide, p q r s, arranged as described, in connection with the tilting roller, u, for the guidance of the rake in a path similar to that which it would receive from the human hand, by which it removes periodically the grain or grass from the bed, and frees itself by the retraction of the teeth endwise.

I also claim the application of a thin light roof to the rakes for harvesters, for the purpose of effecting the separation of the gravel from the falling grain.

DESIGN.

WIRE FENCES—Matthias Lachenmaier, of Philadelphia, Pa.: I do not claim the design or configuration of the rosettes, B, nor that of the wires, between the horizantal twists, A, and the rails, C; nor that between the twists, A, and the rosettes, B.

Nor do I claim the peculiar construction and mode of combination of the ends of the wires, either with the rosettes or with the rails, as described.

But I claim the combination and arrangement of the horizontal twists. A, above and below the rosettes, B, substantially as described, forming together (with the wire and rails) an ornamental design for a wire fence, characterized by a horizontal row of rosettes combined with the wires, so as to be intermediate or between every two horizontal parallel rows of the horizontal twists.

Motives and Results.

The Agricultural and Mechanical newspapers of the world are the most useful. The vocation of political and *religious* papers seems to be to encourage strife, which leads to war, war debts, national distress and ruin, though they all sturdily contend that they only war for peace and human rights! Sad inconsistency between motives and results.

But the Agricultural and Mechanical papers labor for peace and the world's prosperity, the advance of arts, science and useful inventions. We commend scientific papers to our readers. Among the foremost of them in this country is the SCIENTIFIC AMERICAN, published weekly by Munn & Co., New York. We read the AMERICAN constantly, and with pride and instruction. While the bad passions of rulers both here and abroad, are scheming to destroy wealth, it is pleasing to know what good efforts are making to create wealth.

[The above friendly shake of the hand we copy from the St. Louis *Daily Intelligencer*, an influential, political, and commercial journal, ably edited by A. S. Mitchell, Esq.

Recent Foreign Inventions.

PRESERVATION OF DEAD BODIES—Marino L. J. C. Vincent Falconi, of Paris, have recently secured a patent for certain vegetable and mineral substances combined, to be employed in coffins containing the bodies of deceased persons, for preventing their decomposition, and the emanation of noxious gases and liquids. Sawdust, like that of the pine sifted fine, or other vegetable powder least susceptible of decay, is combined with a metallic salt, such as sulphate of zinc or iron, and pulverized camphor mixed with any other perfume. The proportion of sawdust should be about from 20 or 30 lbs. to 8 or 10 lbs. of the pulverized metallic salt, and about an ounce and a half of camphor. To these may be added some extract of benzoin, lavender, balm of tolu, or other perfume, without much regard to quantity, a quarter of an ounce of each would be sufficient. All these substances combined form the composition, having absorbent and anti-putrid properties. For the bodies of those who have died of infectious and epidemic diseases a very small quantity of quicklime should be added to these ingredients. This powder is applied over all parts of the corpse—when laid in the coffin—except the face and the hands. It permits of a body being kept before burial, without inconvenience, for a longer time than is usually permitted.

BLEACHING LINEN AND MUSLIN.—Alfred Hodgkinson, of Belfast, Ireland, patentee. This invention consists simply in first passing cotton and linen cloths to be bleached through milk of lime, for the purpose of equally saturating them therewith before they are boiled.

This seems to us to be a small improvement for the inventor to take out a British patent, but he no doubt knows of what import it is to his business. The common practice in preparing cotton goods for bleaching in this country, is to boil them in lime water.

NEW HONE—A. V. Newton, London, patentee. The invention for which this patent was secured consists in making the grinding surface of hones used for sharpening razors convex, or of portions of the surface of a sphere.

Such kind of hones have been long known in the United States.

OIL FOR DYEING TURKEY RED—G. F. Wilson, director of Price's Patent Candle Co., London, and Wm. Walls, of Glasgow, have obtained a patent for oleic acid (distilled by preference,) in the process of dyeing Turkey red.

Olive oil has heretofore been used for dyeing this splendid red color on cotton, and was mostly obtained from Gallipoli, hence it is sometimes called "Gallipoli oil." It is very expensive, and substitutes for it has oftentimes, but in vain, been sought. If oleic acid will answer as well, it will surprise us not a little, but we hope it will. No Turkey red, we believe, is dyed in our country.

GLASS SOAP—William Gassage, of Widnes, Lancaster, England, chemist, has obtained a patent for the application of a viscuous solution of soluble glass to the manufacture of soap, by mixing solutions of glass with that of the soap, and thus producing a compound soap of valuable detergent qualities. We cannot conceive how the quality of common soap can be improved by mixing it with soluble glass; the proof of the pudding, however, is in the eating of it.

NEW CEMENT—H. Y. D. C. Scott, of Woolwich, England, Cap. of Engineers, patentee. This invention consists in mixing quicklime and carbonate of lime in such proportions as enable them to form, when properly treated, a subcarbonate. These substances are then to be reduced to a powder, and mixed with hot or cold water, and can be used as mortar or for molding purposes.

REVIVIFYING ANIMAL CHARCOAL, AND MAKING PRUSSIATE OF SODA—J. M. G. Costi, of Passy, near Paris, France, has taken out a patent in England for a very peculiar invention, which deserves the attention of our sugar refiners, of which there are now a great number in this city.

This invention has for its object, first, the revivification of animal charcoal which has been used in sugar refineries, &c., in order to render it again serviceable. Second, the extraction from such charcoal of prussiate of potasse or soda. "To obtain these results, I employ," says the inventor, "the following chemical agents: potasse or soda, about one part, sulphate of iron about one part, and animal charcoal (as above) about thirty parts. These ingredients or substances are to be well pulverized, and exposed to the action of caloric until they are calcined. They are then mixed with about sixty parts of water, subjected to ebullition for about half an hour, and then carefully filtered and washed; this is twice repeated. After the last filtration the animal charcoal is to be dried in a proper stove, and the liquid is to be evaporated, so as to produce the prussiates in the crystallized form."

Railroad Convention—Important to Inventors.

A general Railroad Convention was held in the Astor House, this city, on the evening of the 23rd ult., (Thursday last week,) at which some very important resolutions were passed. There were representatives present from twelve different companies, and the object of the meeting was to hold consultation and adopt measures to secure the following objects:—1st. Exemption from accidents.—2nd. Proper discipline, and minute and constant superintendence. 3rd. Proper remuneration for railroad service; and just compensation for passengers and freight. 4th. The annihilation of perquisites received by employees, free tickets, and other abuses. 5th. Economy of fuel by the introduction of coal and coke as substitutes for wood, and a diminution of the use of lubricating material. 6th. A general railroad reform, so that railroads may be considered permanent institutions, forming an important agency in carrying forward the destiny of our race and promoting the welfare of mankind. 7th. Greater morality in the management of railroads, to prevent frauds and falsifications in the issue of stock, &c.

The seventh object of the Convention, perhaps the most important of all, was left without any definite action being taken upon it.

It was resolved by the Convention that the lowest charge for passengers under ordinary circumstances should not be less than three cents per mile. A very improper resolution, we think, as it would make the fare from this city to Albany $4,20. With such fares railroad traveling would become sensibly smaller. A resolution in reference to the speed of express trains, and recommending the Legislatures of the different States to adopt laws fixing the highest rates of railroad speed, was referred to a special Committee. A Committee of three was appointed to draw up a plan whereby the time and talents of the inventors of our country may be particularly directed to the cheapening of fuel for railroads. The Committee consists of W. D. Bishop. of the Naugatuck Railroad, C. Hunt, of the Housatonic Railroad, and J. W. White, of the Norwich and Worcester Railroad Co.

We hope these gentlemen will do their duty promptly and wisely, and report to the next Convention, which is to meet on the 13th of December, at the same place. There are inventors in our country who can devise means to accomplish any reasonable object desired by our railroad companies, if proper and just rewards are offered.

The expense of oil for lubrication on our railroads is now very great, and it is desired that some invention may soon be made to lessen it. Here is a field for our inventors, and one which is worthy of their attention.

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TO CORRESPONDENTS.

W. L. S., of Ohio—We are of opinion thatelectricity could not be successfully employed to attract the sheets of paper against a plate, to be then seized by the wheels and carried into the printing press as you propose. The idea, however, is a novel one, and the mechanism could probably be patented,

F. S. P., of N. J.—We do not know where you can obtain Bates' apparatus for the relief of stammerers ; neither do we know the inventor's address.

G. W. Scollay & Co., St. Louis, Mo., wish to procure a mill to grind sand or clay in connection with glass making. Some of our readers may be able to supply them with this information.

H. S., ofPa.—We should not think there wasmuch chance for a patent on your improvement in saw mills. The novelty is very slight, and the claim, if any, would necessarily be quite limited.

P. O., of N. J.—There is, we think, decided novelty in your cloth-dressing machine ; you had better send us a model of the invention. See that you make it not over a foot square.

O. S., of Miss.—We do not discover anything in your invention upon which a claim could be based. Engines of the style you represent are quite common, and the mere addition of the ends of the shaft of cranks or wrists having a greater stroke than the engine cranks is not patentable, either for the purpose of giving motion to saws or to any other machinery.

W. I. F. S., of Jacksonville.—A model will be necessary. They are in all cases required by law. Send it to this office and we will prepare the documents. The whole cost will be $60. Remit $30 with model. The engraving will cost $20.

J. M. W., of Pa.—We fear that neither of your improvements are patentable. Carey's pump, illustrated on page 345, Vol. 4, SCIENTIFIC AMERICAN, exhibits substantially the same principles as yours. By a study of the history of Rotary Engines, published by us some time since, we think you will see that you have been anticipated.

W. C. P., of Horsham—Theoretically there is a smallgain in power by the use of your water wheel. The mechanical objections, however, counterbalance any such advantage. We are of opinion that you have been anticipated, and that a patent cannot be had.

G. B., of Ill.—Your offer is certainly a very liberal one. but we must decline. We can obtain the foreign patents for you or your friends promptly and on moderate terms, but prefer, from sentiments of delicacy, to have no other interest in them than to see that the business connected with obtaining grants is faithfully done.

T. G., of Ohio.—In the course of our history of the reaping machine, you will find the claims to which you refer. It is our object to publish them in chronological order, therefore we cannot comply with your request. If you desire the claims immediately, we will furnish them upon receipt of $1.

O. C., of Ohio—An elastic or spring whiffletree constructed in the manner shown in your sketch, is not new ; the same thing has been used before, and if we mistake not, a patent already exists upon it.

C. J. C., of Pa.—The engravings you speak of cost $15 ; no charge is made for publication. This offers excellent facilities to inventors—as the SCI. AM. is extensively circulated.

G. & E. H., of N. J.—We are not able to give any satisfactory information in reply to your letter of the 20th inst.

W. P., of Va.—Your improvement in steam engines seems to be quite novel, and we presume a patent can be secured for it.

J. R. D., of Mass.—Your ideas respecting the engine are doubtless correct : it so struck us at the time, but we had no desire to interfere with the inventor's hopes, especially as we were not fully assured upon the point of novelty. Patents are sometimes issued for old inventions ; this cannot be otherwise, but it is a thing of very rare occurrence we think. The danger is, that too many novelties are rejected by the Office.

E. S., of N. Y.—There is nothing new in your slidingbrake for arresting a train of cars. We have seen similar devices and cannot recommend you to apply for a patent on so small a foundation.

E. E., of Ct.—We think your hot air furnace is new and patentable : it is not like Chilson's ; it is constructed upon a very different arrangement.

J. B. M., of Pa.—Cylinders furnished with spiral knives for cutting sausage meat, as shown in your sketch, are well known. In one of the previous volumes of the SCI. AM., an engraving is given of one similar to yours.

W. B. T., of Geo.—Your proposition, if we rightly understand it, is to employ a steam engine, and increase its effective power by using four paddle wheels for propelling, instead of two, as is now done. A very little reflection will convince you that the results would be different from what you expect. The engine could give out no more power than it would exert on a single pair of wheels, and to have four wheels under such circumstances, we believe, would be a hindrance and not an advantage.

C. M., of Mass.—You have no right to continue the word "patent" on machinery after the patent has expired ; it would be considered an infraction of the law.

T. S. B., of Pa.—Carpet bags have never been constructed to our knowledge with a wire gauze lining, so as to prevent them from being cut open. It has been suggested to us by some correspondent to line pockets in this manner to secure them against the assaults of the light-fingered gentry. We do not think there is any chance for a claim on it.

A. R. H., of Pa.—There is some little novelty in your method of stopping trains by throwing down the brake on the track, but it is so much like Trink's plan, which was exhibited two years ago at the Fair of the American Institute, that we think it not prudent to encourage you to apply for a patent on the difference ; besides we have not much faith in its success—the tendency would be to throw the cars from the track.

T. D. H., of Ga.—We have examined the specimen of plumbago which you sent ; it appears to be of an unusually excellent quality. If you can produce it in quantities, all as fine as this specimen, your mine ought to be of some value. Much, however, depends upon the nearness of your locality to tide water. Plumbago does not bring a very high price and the market is easily overstocked. All depends upon the cheapness with which you can land it in New York. Plumbago is extensively used for making black-lead crucibles : We believe that large quantities are exported to Europe by one or two establishments near this city. Electrotypers use it in small quantities to dust their wax molds ; they pay for the best $2 a pound, but this is owing to the great labor spent in pulverizing it. It is also used as a polishing powder, and as a lubricator by piano makers, also for lead pencils.

Money received on account of Patent Office business for he week ending Saturday, Nov. 25 :—

P. H., of Mass., $25 ; T. H., of N. Y., $38 ; A. F., of Vt., $25 ; J. P., of——$10 ; G. P. K., of Ind., $30 ; G. F. A., of Wis., $25 ; P. & P., of Ct., $30 ; J. L. Y., of La., $30 ; H. B. Jr., of Pa., $20 ; L. K., of N. Y., $20 ; W. C. & J. S. B., of N. Y., $30 ; E. F., of Pa., $60 ; W. H. H., of Mass., $30 ; A. J. B., of Mich., $30 ; H. E. K., of N. J., $30 ; N. W., of Ala., $15 ; J. S., of O., $55 ; L. D., of Pa., $110 ; N. P. Q., of N. Y., $25 ; C. W., of Tenn., $25 ; C. E. M., of N. Y., $30 ; F. Z. T., of N. Y., $39 ; W. & P., of N. Y., $57 ; J. P. C., of N. Y., $57 ; R. K., of Mass., $35.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Nov. 25 :—

P. H., of Mass. ; C. W., of Tenn. ; J. L. Y., of La. ; G. F. A., of Wis. ; A. F., of Vt. ; H. B. Jr., of Pa. ; J. W. Y., of Pa. ; C. E. M., of N. Y. ; F. Z. T., of N. Y. ; J. R. H., of Pa. ; W. J. S., of N. Y. ; J. P. C., of N. Y. ; N. P. Q., of N. Y. ; J. S. A., of N. Y. ; R. K., of Mass.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—MESSRS. MUNN & CO., Publishers and Proprietors of the SCIENTIFIC AMERICAN, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britain, France, Belgium, Holland, Austria, Spain, etc., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter intrusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of attending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of making an application, if deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us ; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York ; London, No. 16 Castle st. ; Paris, No. 29 Boulevard St. Martin ; Brussels, No. 6 Rue D'Or.

HARRISON'S MILL, PRICE LIST, &c.—These Mills are warranted to give satisfaction.

Size of stone, - - - -	20 inch	30 inch.	3 feet.	4 feet.
Cash price of single geared mills - - -	$100	$200	$300	$400
Do. of double geared do.	$115	$225	$330	$450
Bush. they grind in 10 h	50	150	225	350
Horse power required	1 to 4	6 to 12	12 to 18	50 to 30
Revolutions per minute	500to700	500to800	400to700	400to550
Size of pulleys - - -	9 in.	15 in.	18 in.	24 in.
Width of do. - - - -	5 in.	8 in.	10 in.	12 in.
Hight of center of pulley from the floor - -	9 in.	10 in.	11 in.	14 in.
Weight of Mills - - -	500 lbs.	1400 lbs.	1800lbs.	300 lbs.
Hight of do.with hopper	2 ft. 9 in	2 ft.9 in.	4 feet.	5 fe3t.

The above sizes, with the latest improvements, to be had of EDWARD HARRISON, sole manufacturer, New Haven, Conn. 12 7*

ZINC GALVANIZED WIRE—J. G. GOULD wishes to purchase a large quantity of zinc galvanized wire, Nos. 11 and 12. Any person or persons who have this article for sale will do well to address him at Alliance, Stark Co., Ohio, or at Deerfield, Portage Co., Ohio. 12 2*

WANTED—By a Millwright and Pattern Maker, a situation in some Southern or Western city. Satisfactory reference given as to ability and habits. Address Pattern Maker, 148 Third street, Albany, N. Y. 12 2*

FOR SALE CHEAP—A good second hand Steam Engine of about 30 horse power, with boilers in good order. For sale on account of removal. Apply at 44 Cliff street. 1*

TO MANUFACTURERS AND MACHINISTS—The advertiser is in possession of an invention relating to the manufacture of ingrain carpets and other fabrics and which will when carried into effect, make a complete revolution in their production : any one willing to take out a patent conjointly with the inventor, for the above discovery, may be made acquainted with the terms by applying by letter, postage paid, J. J. B., Oak Grove, Christian Co., Ky. 12 2*

TO FOUNDRYMEN AND MACHINISTS—Metallic letters and figures to put on patterns. Roman Style—Size. 5-16, price 3cts. ; size 3-8, 3cts. ; size 1-2, 4cts. ; size 5-8 4cts. ; size 3-4. 5cts. ; size 1 in., 6cts. ; size 1 1-4, 7cts ; size 1 1-2, 8cts. ; size 2 in. 10cts Also Gothic Style, size 1-4, 3cts. Roman Style Branding Irons—Size 3-8, 4cts. ; size 1-2 4cts. ; size 5-8 5cts. ; size 3-4. 6cts. N. B.—The above are the sizes on the face of the letters. Manufactured by COWING & CO., Seneca Falls, N. Y. Orders solicited. They can be sent to all parts of the Union, either by mail or express. We weigh all packages and send them the cheapest way. Terms, cash. 1*

UNITED STATES PATENT OFFICE,
Washington, August 4, 1854.

ON THE PETITION of David Matthew, of Philadelphia, Pennsylvania, praying for the extension of a patent granted to him the 31st day of December, 1840, for an improvement in "Spark Arresters," for seven years from the expiration of said patent, which takes place on the 31st day of December 1854 :

It is ordered that the said petition be heard at the Patent Office on Monday, the 18th of December next, at 12 o'clock M., and all persons are notified to appear and show cause if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

The testimony in the case will be closed on the 8th of December ; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day ; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C. ; Pennsylvanian, Philadelphia. Penn. ; Scientific American, N. Y. ; Post, Boston, Mass., once a week for three successive weeks previous to the 18th of December next, the day of hearing. CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 11 3

IRON PLANERS—NEW PATTERN—Now building, and for sale on better terms than any others in the country of same quality. Address New Haven Manufacturing Co., New Haven Conn. 11 tf

IRON MOLDERS' FACINGS—Viz., Sea Coal, Anthracite and Charcoal, Soapstone and Black Lead, for sale by G. O. ROBERTSON, 135 Water street, corner of Pine. 11 4*

READING'S PATENT HORSE POWER CORN Sheller and Cleaner. Patented July 13th, 1852. This machine took the first premium in 1853 at the World's Fair, American Institute, New York ; Franklin Institute, Philadelphia, and six other county and State Fairs, and its superiority is fully established : it will shell and clean perfectly from 75 to 150 bushels per hour, the right to make and sell the machines can be had by responsible manufacturers at $6 each, and agents who effect sales of Territory shall be entitled to 50 per cent. of the gross receipts, as the owner is unable to attend to the business, here is an inducement for persons to engage, as the utility of the machine is known. Apply to WM. READING, Washington, D. C. 11 4*

TO SAW MAKERS—For sale a machine for grinding circular saws on both sides simultaneously, and will grind them one uniform thickness, concave or convex, if wanted. patented May 4 1852, the machine can be seen in working order, also a working model for mill saws and cross-cuts by applying to the patentee. WM. SOUTHWELL, No. 42 Master street, Philadelphia. Pa. Patent rights for sale on the above. 11 2*

MACHINE GROUND CIRCULAR SAWS—(Patent applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less set and run faster than any other hitherto made. All diameters and thicknesses warranted perfectly true. HENSHAW & CLEMSON, 31 Exchange street, Boston. 11 8*

IMPORTANT TO INVENTORS, &c., &c.—ALFRED ASTON, No. 4 High street, Birmingham, England, is open to purchase for cash all kinds of mechanical and useful inventions or manufactured articles that will command a ready sale in England. Established in the year 1770 for the sale of all articles in the hardware and general trade. Address paid letters as above. 11 4

DICTIONARY OF TECHNICAL TERMS—In French, English, and German. A new work presenting all the terms used in science and art. The terms are first given in French, then in English and German. It is the first of three volumes arranged differently, and is a very useful work. For sale at this office, price $1.31

TO SPECULATORS IN PATENT RIGHTS—The subscriber has several improvements, (some in machinery, and some of them in household articles) which will be sold on terms to admit of profitable speculations. Apply corner Myrtle and Classon Aves., East Brooklyn. GERARD SICKLES, Agent 11 4

THE FRENCH EXHIBITION—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Garelissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commissioner, Scientific American Office.

PIG IRON—SCOTCH AND AMERICAN—Also Cupola Fire Bricks, Clay and Sand, for sale by G. O. ROBERTSON, 135 Water street, corner of Pine. 11 4*

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—TESTIMONIALS—"I certainly would not exchange it for any boiler I have ever seen or used." —W. Burtt, Esq., Kal, Mich.

"It is the most economical boiler and produces more steam of a better quality than any I have ever used."—A. Low, Esq., Franklin Foundry, Albany, N. Y.

"I am well pleased with the principle of this boiler, and believe it to be the best in use."—L. E. Webb, Esq., Guilford, Conn.

"We find evaporation per 1 lb. of coal to be equal to 13·003 lbs. water."—Rep. Messrs. Ehman & Cook, Engineers.

Orders for Boilers promptly filled. Descriptive circulars obtained on application at the Company's office. Rights negotiated for the United States, England, France, and Belgium. W. F. PHELPS, Sec'y Irving Boiler Co. 347 Broadway. 10 6eow*

SPECTACLES—Spy Glasses, Microscopes, Platina Points, &c., &c., &c., McALLISTER & BROTHER, 48 Chestnut street, Philadelphia. 9 4

DRAUGHT BOARDS—Patent, 23 by 29 inches.—Ready sales their best recommendation. Cheapest instruments in use. Complete for $10. Sent by Express. Direct (post paid) to CHAMBERLIN & Co., Pittsfield, Mass. 8 5t*

AMERICAN STONE DRESSING MACHINE—"Porter's Patent," illustrated in No. 8, present Volume. The subscribers are now prepared to sell rights to use the above machine, patented August 8th. 1854. One is now on exhibition at Nos. 35 and 37 Ganesvoort street, in the city of New York, and all persons interested in the business are invited to visit it. as the machine itself will give the best idea of its own capacity. Being very simple in its construction, and adapted to a great variety of purposes, requiring but little power, saving an immense amount of labor, and producing surfaces far more perfect than can be produced by hand. it is believed that no one carrying on the business of working stone, of whatever nature, can long afford to be without one. CAPWELL & PORTER,
8 6* New York City.

PHILOSOPHICAL APPARATUS—Of every description. McALLISTER & BROTHER, 48 Chestnut street, Philadelphia. 9 4

THE STAIR BUILDERS' GUIDE—By Cupper, now ready ; price $6. By remitting, the book will be sent by mail or express to any part of Canada or the United States. W. GOWANS, 178 Fulton street. 9 4*

MATHEMATICAL INSTRUMENTS—Separate and in cases. McALLISTER & BRO., 48 Chestnut street, Philadelphia. 9 4

PRICES GREATLY REDUCED—JOHN PARSHLEY, New Haven, Conn., will have 12 of his No. 2 Iron Planers finished by the 1st of January, 1855, to plane 12 feet long, 36 inches wide and 30 inches high, with down and angle feed in the cross-head, they weigh about 8,000 lbs, and are in workmanship and design equal to any planers built in New England. Price 550 dollars cash. Boxing and Shipping extra. For cuts address as above. 8 tf

ESTABLISHED IN 1796—Philosophical, Mathematical and Optical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut st., Philadelphia. 9tf

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts. ; six months 50 cts. ; one year, 75 cents, 16 months, $1. Or three copies one year, $2 ; eight copies $5 ; twenty-five copies $15 ; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

**COTTON AND WOOLEN MANUFACTURERS' Supplies of every description ; also machinery of all kinds ; wrought-iron Tackle Blocks of all sizes ; Leather Belting superior oak tanned ; Bolts, Nuts, and Washers of all sizes on the most reasonable terms.
6 13* SAML. B. LEACH, 51 Broad st.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037 ; they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
9 e3wtf 12 Platt st., New York.

MATHEMATICAL AND OPTICAL INSTRUMENTS—The undersigned has just opened a new and extensive assortment of the above Instruments, his own selection made in Europe. It should also be kept in mind that he has the exclusive agency for the sale of the justly celebrated Swiss Drawing Instruments. Transits, Levels, and Surveyors Compasses made to order. C. T. AMSLER,
8 6eow* 211 Chesnut st., Philadelphia, Pa.

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and [illegible] Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 6tf

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo ; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds : Engine Lathes, Planers, Drills, Chucks, Boring Mills ; also machinery of all kinds on hand or furnished to order. 7tf

1854—**MICHIGAN CENTRAL R.R. LINE** D.W. WHITING, Freight Agent, and also General Forwarder. having been a practical machinist, is prepared with skill and implements to handle and ship by any line, all kinds of machinery and manufacturers' wares. Mark plainly, care D. W. WHITING, Buffalo, N. Y. 7tf

STEAM ENGINES AND BOILERS FOR SALE.—One new eight-horse engine. One second hand five-horse engine. Tubular boilers, second-hand, suitable for same. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 4tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 1 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 1 tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill Irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
8 1y* LOGAN VAIL & CO., 9 Gold st., N. Y.

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 1 tf

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

THE MERIDEN MACHINE CO.—Successors to Oliver Snow & Co., West Meriden, Conn. Have on hand and make to order a great varlety of Lathes, Planers, and other machinists tools of superior quality and finish. Cuts of these tools may be had on application as above, with full particulars. They also manufacture Farnam's Patent Lift and Force Pumps of all sizes. For mines, factories, railroad stations, &c. Having a large and extensive variety of patterns, the accumulation of over 20 years business, and extensive facilities for making light or heavy castings, are prepared to contract for any kind of mill work, mining machinery, &c. New York Office and Sample Room, No. 15 Gold, cor. Platt st. 1 3m*

PHŒNIX IRON WORKS—GEO. S. LINCOLN & CO., Hartford, Conn. Manufacturers of Machinists Tools. Are constantly making and have now on hand an assortment of Screw Cutting Engine Lathes, viz. :—No. 1. bed 10 ft. long, swing 20 inch. No. 2. bed 14 ft. long, swing 30 inches. No. 3. bed 16 1-2 ft long, swing 40 inches, with improved bed, cast steel spindles, feed motion carried by a screw, toothed rack for moving tool rest by hand, improved gibb rest and tool stock, stationary and traveling back rest ; also manufacturers of Lathes for turning Locomotive Driving Wheels, small Power Planers, Upright Drills, Power Punching Presses, &c. Designs of the tools with further descriptions, will be sent by addressing as above. 1 3m*

ENGINEERS, DRAUGHTSMEN, AND MECHANICS supplied with Drawing Instruments, separate and in cases. Parallel Rules. Scales, Dividers, Metallic Tape Measures Linen do., Chains, Surveyors' Compasses, Levels and Transits, and a large assortment of Optical and Mathematical Instruments, wholesale and retail by JAS. W. QUEEN, of the late firm of McAllister & Co., 264 Chesnut st., Philadelphia. Illustrated catalogues gratis by mail. 3 3m*

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 9, 1854. TAFT & GLEASON. 50 1y*

WIRE ROPE OF IRON AND COPPER—For Mines, Inclined Planes, Hoisting and Steering purposes, Stays or Braces, &c., &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 5 3m

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools 50 6m*

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Science and Art.

Chemical Filtration of Water.

PREVENTING INCRUSTATIONS OF BOILERS—An important improvement has been made in the filtration of water—chemically—for the purpose of removing all the lime held in solution, so that naturally, hard water can be safely employed for steam boilers, without the fears of causing incrustations. The nature of the improvement consists in providing an upright cylindrical vessel, divided into different compartments, the upper one being filled with stones, the next containing broom brush, and the lower one some suitable substance, impregnated with some such free alkali as ammonia, which is always to be obtained cheaply in some kinds of stable manure. The water to be fed into the boiler is passed through this apparatus, being first heated at the top of the cylinder, by contact with the exhaust steam, to a temperature of about 70° degrees, which causes the liquid in passing over so many substances to deposit all the incrusting matter which it had held in solution, thus rendering the water perfectly pure when it arrives at the boiler.

This method of purifying water for steam boilers is the invention of G. Weissenborn, of this city, who has taken measures to secure a patent for the same.

The Healthfulness of Smoke.

A writer in the London *Times* discourses upon the properties of smoke. He thinks London and all large cities would be much less healthy but for the artificial atmosphere created by the combustion of wood and coal, describing smoke as nothing more than minute flakes of carbon or charcoal, which absorb the poisonous gases emanating from sewers and from works where animal substances are under manipulation.

We think this writer has not studied the subject very profoundly, as smoke is not altogether minute flakes of carbon, but carbon in combination with one equivalent of oxygen forming carbonic oxyd, and is very hurtful to the lungs. The smoke of coal or wood causes severe headaches in most persons, even when exposed to it but a very few minutes. It is true, however, that flakes of carbon from bituminous coal, fill the atmosphere of London and Liverpool in England, and Pittsburg in America, but the inhabitants of these cities are just as subject to disease as those where nothing but anthracite coal is burned, which gives off no smoke.

The Cholera and Geology.

M. Boubee, of Paris, has again, in a recent publication, put forth the geological theory of cholera, which asserts it never visits districts reposing on a primitive foundation, such as granite and mica schists. He states that it has never visited the towns of the Pyrenees which repose on such rocks, and that since 1832 he has made such observations as have confirmed him in these views. If we are not much mistaken, the cholera has never visited the granite regions of New Hampshire, nor those of Vermont, but we know it has visited with great severity many places situated on micaceous rocks, such as the city of Troy, N. Y., and other like places, which have felt the scourge severely this year.

A Spotted Negro Man.

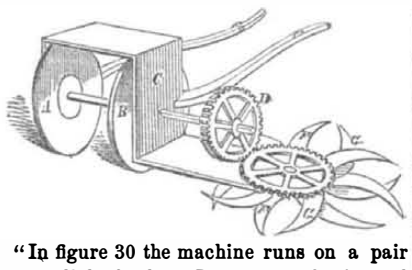
A man belonging to A. F. Bunce, Saline Co., Ala., now about forty-five years old, was at twelve, copper color all over; at twenty, spotted like a leopard; and is now undergoing a second change, the black spots increasing in size and number. The parts of his skin which are white, are very white, clear, and smooth. The hair and features show that he is an unmixed African. He is stout, and has always been healthy, except a rheumatism, which is of late origin.—[Exchange.

[A case of the same kind was brought before the British Scientific Association. The negro was living in Liverpool, and had been perfectly black until he was treated with mercury for rheumatism; after this his body broke out into yellow and red spots.

History of Reaping Machines.—No. 10.

From the number of the *Practical Mechanics' Journal* for December 1852, we extract a brief account of three reaping machines, invented by Lewis Gompertz, of London, illustrated by figures 30 and 31. The striking and presumptive peculiarities of these contrivances demand that they should be noticed in the inventor's own language.

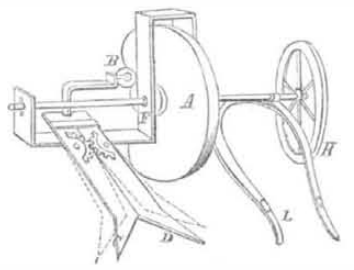
FIG. 30.



"In figure 30 the machine runs on a pair of parallel wheels, A B, fast on a horizontal axle, the projecting end of which carries a toothed wheel, D, in gear with a counterpart wheel, E, the shaft of which carries a series of scythe-shaped cutters, F, these cutters revolve with the shaft, and immediately beneath them is a second set, G, of similar shape, but stationary, and set with their cutting edges in opposition to those of the revolving cutters. A is the wheel running outside the grain, which is cut by being pressed between the two sets of cutters."

"In figure 31 the cutting action is accomplished by means of a pair of shears. A is the actuating wheel driven by its contact with the ground. This wheel is differentially curved, and the pulley bears against one of its faces, this pulley being carried in the end of an arm, fast to a pair of oscillating shears, C D. These shears oscillate on distinct centers in the framing, F, and they are geared together to work simultaneously by the segmental toothed wheels on their upper

FIG. 31.



sides; the shafts, L, form the tractive apparatus, and H is the near wheel. Then, as the machine travels along, the action of the wheel A, on the pulley, B, closes the pair of cutting blades; the opening for the succeeding cut being effected by the india rubber band, which keeps the pulley, B, constantly pressed against the cam wheel, A.

The projecting ends of the blades are bevelled outward, so as always to retain some straw in their grasp, otherwise they would leave much uncut. I have herein made no provision for laying the grain when cut, but as all the three schemes cut sidewise, instead of running directly into the grain, such contrivance may probably be dispensed with, if not, a shelving covering might be applied so as to pass the grain over to its proper place."

(For the Scientific American.)

Comets.

Where do comets go to, and what keeps them going systematically when they leave the realms of our sun's dominion? The planets of our solar system move round the sun in ellipses not far removed from circles.—Halley's comet moves in an ellipse which is four times as long as it is broad, according to cometic calculation, and while its perihelion is 57 millions of miles from the sun, its aphelion is 3550 millions of miles from that luminary. This is nothing but a proximate calculation. The visible part of a comet's movement in her orbit is so small that the true figure of her orbitual track cannot be given with accuracy, and hence her remotest point, i. e. aphelion, may be much greater than is assigned to it. It is conjectured that some comets never return, on the assumption that they move in parabolic or hyperbolic curves. Analagous reasoning leaves but little room for such an assumption, if it is an inevitable law that a parabola or hyperbola cannot be mathematically or astronomically bent into an orbitual figure. However, for the present consideration, it is enough to know that some comets move in elliptical tracks, more or less elongated, and that the sun, our sun, is in one of the foci. The question with me is, what constitutes its remote foci? There must evidently be something there to regulate its wandering track when so far removed from the known realms of our solar system. Does it not travel round a star—another sun—of some other solar system in its remote foci? May not comets be the connecting links which bind and balance the myriads of solar systems into one harmonious cosmogony? Although the nearest visible stars are by computation more remote from the sun than Halley makes the aphelion of his comet, there may be stars, invisible to us, which are near enough and of sufficient magnitude to be suns of systems as great as ours, and be the regulators or outer centers of the comets of short periods, such as Halley's. The assumption of a class of comets falling into our solar sphere, and there to sweep in parabolic curves round the sun, and then to pass out into illimitable space never to return, is too accidental a hypothesis to follow up the rational and certain laws which govern the planets of our system. Great astronomers have given comets very bad characters. Comets have been charged with terrible assaults upon our little earth-ball. Professor Nichol says to the comet of Lexell, "What, then, is it your destiny to tell us? To what new page of that infinite book are you an index? We missed, indeed, only very narrowly, an opportunity of information which might have been not the most convenient; for the earth escaped being involved in the huge tail of our recent visitor merely by *being fourteen days behind it.*" According to Prof. Nichol's opinion, this comet has swept off on its parabolic leg never to return, playing in its course such heavenly pranks as twisting round stars, and doubling, as he said it did, its perihelic circuit round the sun.—Now does it not accord better with natural science and astronomical harmony to give to comets two centers? Will some of your astronomical readers make inquiry into that assumption? The moon is obedient to the earth. The earth and moon form a system which is obedient to the sun. The sun with her primary and secondary attendants form a system which seems to be obedient to a greater system. May not comets form the bands which link systems together? JNO. WISE.

Lancaster, Pa., Nov. 15th, 1854.

Phosphate of Lime—A New Test.

The action of boracic acid upon the phosphate of lime, as described by C. Tissier in the *Comptes Rendus*, (Paris,) is exceedingly interesting to agricultural chemists. If to an acid solution, either nitric or muriatic, containing phosphate of lime, (or a soluble phosphate and chloride of lime,) and an excess of boracic acid, there be added borate of soda in sufficient quantity to saturate the acid which holds the phosphate in solution, no borate of lime is precipitated, but all the phosphoric acid is thrown down in the form of phosphate of lime. This precipitate has not a variable composition like that formed by being saturated with ammonia, but has a constant composition and a well-defined formula. It corresponds with that for which Berzelius gives the formula, 8 Ca. O, 3 P O^5, and which contains phosphoric acid 49·09,—lime 50·91. This method of precipitating phosphoric acid from its solution will greatly facilitate the determination of the quantity of phosphates contained in soils and manures.

Arsenic in Fevers.

Boudin, Physician-in-Chief of the military hospital du Roull, is said to treat almost all limnemic affections, regardless of symptoms, with arsenious acid. This distinguished French surgeon says that after having commenced to administer the twenty-fourth part of a grain, he gradually became convinced, with many other physicians who had obtained similar results, that arsenious acid preserves, even at the small dose of one hundredth part of a grain, all its medicinal energy, not only in the treatment of marsh intermittents, but also in that of a number of other diseases.—Dr. B. says, that with a single dose of the one hundredth part of a grain. he has often removed, radically, fevers contracted in Algiers or on the Senegal, which had resisted the sulphate of quinia and the change of climate.

LITERARY NOTICES.

LONDON QUARTERLY REVIEW—For October, is a very superior number. It has a very interesting article upon Oliver Goldsmith—another, entitled "The Eclipse of Faith," is a powerful article, and should be very carefully read. There are also several other very choice papers in this number of the review. It is regularly re-published in excellent style by Leonard Scott & Co., No. 79 Fulton street, New York, at $3 per annum. This is the last number of the volume.

THE NATIONAL MAGAZINE—For December, continues the illustrated scenes in the life of Martin Luther. It has also several other illustrations of rare interest. We commend this excellent Magazine to our readers as one of the best of the day. A new volume commences with the January number. Terms $2 a year. Carlton & Phillips, New York, Publishers.

THE NEW ENGLANDER.—The present number of this able Review contains an article from Dr. Bushnell on "The Christian Trinity, a Practical Truth," which will no doubt create a strong desire in the minds of many to read it, owing to him being considered, by some Congregationalists, not strictly orthodox on this doctrine. It contains seven other articles of great ability; the sixth, on the disputed question of the stars being inhabited, by Prof. Olmstead, in which he concludes that the stars may be inhabited by rational beings, although they may be devoid of vegetables, water, or air. Published at New Haven, Conn., by F. W. Northrup.

RAILROAD ADVOCATE—This is the title of a new weekly paper, two numbers of which have been issued in this city, by Zerah Colburn, publisher and editor. It has the appearance of being edited with ability, and all those connected with the railroad interests of our country may expect from its editor an excellent paper—his previous writings on railroad engineering warrant this.

CHAMBERS' JOURNAL.—P. D. Orvis, publisher, 130 Fulton street, single copies 12½ cents; $1,50 per annum. The December number of this well known publication has been laid upon our table. There are few better writers than Wm. Chambers, and every number of this publication contains one or more articles from his pen. "Things as they are in America," is the title of one of the papers continued in this month's number, in which the American character is vividly portrayed.

THE EDINBURGH REVIEW—This Nestor of foreign reviews for the present quarter has been promptly republished by Messrs. Leonard Scott, & Co., this city. Its leading article is on the abuses of the Church of England, and it contains seven others of great power. This *Review* is perhaps the ablest in the world, whether treating of religious, political, or literary subjects. Its editor, we believe, is the Rev. Mr. Rodgers, author of the *Eclipse of Faith.*

LITTELL'S LIVING AGE—No. 547, of this fine weekly publication contains a very excellent abstract of the proceedings of the British Association for the Advancement of Science. It is illustrated by a steel engraving of the Covenanters dragged to Execution. The office in this city is 243 Broadway.

The last number received of the Nashville *American* contains an address delivered before the Mechanics Institute of that thriving place, by the Rev. J. B. Ferguson. It is a thoughtful and brilliant production.

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